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SUPERIOR PULMONARY SULCUS TUMOR

TUMOR CHARACTERIZED BY PAIN, HORNER'S SYNDROME, DESTRUCTION OF BONE AND ATROPHY OF HAND MUSCLES

CHAIRMAN'S ADDRESS

HENRY K. PANCOAST, M.D.
PHILADELPHIA

Medicine is not and cannot be an exact science because of the complexity of the human element involved. Roentgenology is the youngest branch of the specialties and is a study of living pathology. Even pathology is subject to many changes through experience, progress in investigation and study. This is one of the factors concerned in changes in roentgenology, and presumably for its betterment, through greater exactitude, further investigations, added experience and the acknowledgment of and correction of mistakes. In 1924, when a group of roentgenologists were on trial for possible acceptance as a new section in the American Medical Association, I presented a paper [1] before the Section on Miscellaneous Topics, in which were reported three cases of what seemed to be a new entity among intrathoracic tumors. I have selected this subject again for the chairman's address as one slight means of showing that roentgenologists are genuinely alive to the necessity for accuracy in diagnosis, as are the members of any of the other special branches of medicine.

The tumors in question seemed to occur at a definite location at the thoracic inlet, were characterized clinically by pain around the shoulder and down the arm, Horner's syndrome and atrophy of the muscles of the hand and presented roentgenographic evidences of a small, homogeneous shadow at the extreme apex, always more or less local rib destruction and often vertebral infiltration. Death occurred as a result of what seemed to be a comparatively trivial growth without detectable metastases roentgenologically. The tumors were differentiated from other neoplasms occurring in the neighborhood, such as apical primary lung carcinoma and sarcoma of the ribs, by the absence of one or more of the foregoing characteristic manifestations. It has been found necessary, since then, to add other conditions to this list.

It has been found advisable to discard the name of "apical chest tumor" as a designation for this growth, because it has proved to be confusing and has permitted the inclusion of other more common tumors in the upper part of the thorax. The name of "superior pulmonary sulcus tumor" has been given to it because this term implies its approximate location and a lack of origin from the lung, pleura, ribs or mediastinum. It is possible that this new designation may be changed again with a better knowledge of the histopathology of the growth.

I wish to review briefly the three cases previously reported, to add four additional ones which have come under my observation more recently and to comment further on the histologic, anatomic, clinical and roentgenologic characteristics of the group.

REPORT OF CASES

CASE 1 (previously reported).—A. C., a man, aged 52, was admitted to the University Hospital on the services of Dr. Spiller and Dr. Frazier, Sept. 21, 1921, suffering with intense burning pain high in the left axilla and extending down the inner side of the arm, of eleven months' duration, and later with associated muscular weakness and wasting in the hand. Horner's syndrome was quite evident on admission. Roentgen examination showed a shadow in the extreme left apex of the chest and destruction of the posterior portions of the second and third ribs and corresponding transverse processes. The patient was operated on, the tumor exposed and a section removed for biopsy. Radium was implanted (2,375 mg. hours); subsequently external roentgen irradiation was given, without response or relief, and the patient died. The pathologic report by the late Dr. A. J. Smith was endothelioma of the diffuse infiltrating type resembling carcinoma.

Recently a slide of the tumor in this case was found. It has been reviewed by Dr. Joseph McFarland, and he has passed judgment on the histopathology as carcinoma spinocellulare, with groups of typical prickle cells. This alters the entire situation as to the histology of the tumor and its probable point of origin. This opinion appealed to me because I could not understand why an endothelioma of the pleura in this particular location would always infiltrate bone and rarely if ever do so elsewhere in the pleura.

CASE 2 (previously reported).—H. N., a man, aged 36, was admitted to the University Hospital, on Jan. 22, 1922, on the service of Dr. Stengel. His chief complaint was a dull aching pain of four months' duration, confined chiefly to the inner border of the left scapula, high in the axilla and down the inner side of the arm. These are typical locations. Horner's syndrome was manifest by a contracted pupil and ptosis of the lid. Roentgenograms of the chest and later of the shoulder were regarded as negative at the time, but both were found on subsequent review to show a slight localized shadow at the left apex. Rib erosion was doubtful. Subsequent clinical study, March 28, showed a considerable loss in weight, more marked sympathetic paralysis and the addition of unilateral sweating. Roentgenograms now showed partial destruction of the first and second ribs and erosion of the second transverse process. This tumor was exposed at operation and was 75 mm. long; it was found extending around the posterior aspect of the upper thoracic cavity and lying on the transverse processes. Biopsy showed carcinoma. Radium implantation and external irradiation by roentgen rays failed to check the growth. In July, six months after admission and ten months after the onset of symptoms, the third rib was involved and the sides of the

Read before the Section on Radiology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Pancoast, H. K.: Importance of Careful Roentgen-Ray Investigations of Apical Chest Tumors, J. A. M. A. 83: 1407 (Nov. 1) 1924.

first, second and third thoracic vertebrae were beginning to erode. The patient died in about one year after the onset of symptoms.

Case 3 (previously reported).—W. S., a man, aged 60, was referred for examination by Dr. Kopeika and Dr. Riesman, Dec. 22, 1923, because of pain around the right shoulder. The roentgenogram of the shoulder was regarded as negative, but a review later showed a faint localized shadow in the right apical region. By the following September the pain had extended down the inner arm and forearm to the wrist, and Horner's syndrome was noted. In November, Dr. Manges examined him and found a right apical tumor causing a diffuse shadow and destruction of the posterior portion of the first rib and the adjacent transverse process and the lateral portion of the second rib. The patient died in January, 1924, despite deep roentgenotherapy. There was no biopsy or necropsy.

Case 4.—*History.*—W. B. C., a man, aged 55, was admitted to the University Hospital on the service of Dr. Spiller, Nov. 29, 1925. About five years before he began to have a sense of discomfort in the lower cervical and upper thoracic region. This was not relieved by several osteopathic treatments given during February, 1925. In April, 1925, the pain began to settle posteriorly under the lateral border of the right scapula, and later radiated anteriorly in the third interspace and

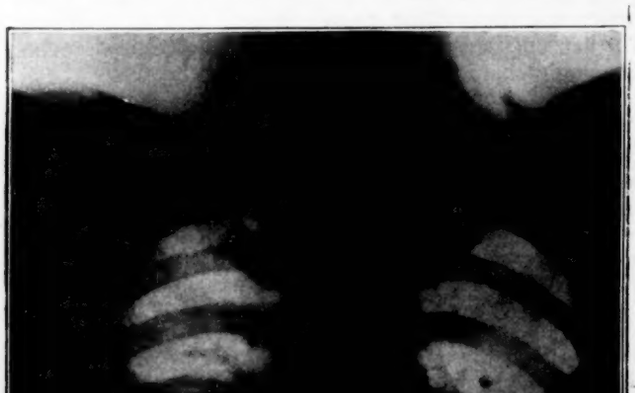

Fig. 1 (case 4).—Roentgenogram of the chest, showing slight increase in density in the extreme right apex and slight erosion of the second and third ribs. The neck of the second is involved but not the transverse process.

subsequently throughout the right axilla. A roentgen examination made elsewhere of the right shoulder showed a calcification indicative of so-called subacromial bursitis. Unfortunately the spine and ribs were not included in this examination. The pain next radiated, first, down the arm to the elbow and, later, down the inner aspect of the forearm to the wrist and fifth finger. On admission Horner's syndrome was observed, with a contracted pupil, a narrowed palpebral fissure, enophthalmos and slight atrophy of the side of the face. There was no unilateral sweating, and the pupil reacted to light and in accommodation. The only important clinical finding in the chest was an impaired percussion note over the right upper part of the thorax posteriorly. The liver was not palpable. The right triceps and biceps reflexes were absent.

Roentgen Examination.—December 2, the chest (fig. 1) showed a slight increase in density in the extreme right apex and slight erosion of the second and third ribs. The diagnosis was made, on this exposure, of apical chest tumor, conforming with what is now termed an upper pulmonary sulcus tumor, although it was confirmed by spinal examination.

Case 5.—*History.*—F. G., a janitor, aged 62, a native of Porto Rico, was admitted to the Philadelphia General Hospital Jan. 16, 1932, on the service of Dr. Schnabel. He first noticed numbness and tingling in the fossa of the right elbow, May 5, 1931. This continued and become more widespread and spread to the inside of the arm. On admission he had lost 40 pounds (18.1 Kg.) in weight. He had no cough, hemoptysis or dyspnea.

Physical Examination.—Examination showed Horner's syndrome, with a contracted right pupil, which did not react to light, a narrowed palpebral fissure and lack of sweating on the right side. There was impairment to percussion over the right apex. The liver was enlarged and extended 1.5 cm. below the costal margin. There were pain over the right upper part of the chest and down the inside of the right arm, weakness of the right arm and loss of power in the right arm; the right biceps and triceps reflexes were absent. The patient was transferred to the roentgenologic service.

Roentgen Examination.—Jan. 21, 1932, roentgenograms of the chest showed an increased density in the right apex and some rib destruction. The posterior exposure of the spine showed destruction of the entire first rib and the posterior two thirds of the second and beginning erosion of the posterior portion of the third. The adjacent transverse processes of the first and second thoracic vertebrae were destroyed, and there was beginning erosion of the side of the body of the second. The condition resisted all efforts at irradiation treatment. A second examination, March 15, showed no increase in the apical shadow, but there was more destruction of the third rib. The patient died about April 1.

Case 6.—*History.*—Mrs. A. M., a widow, aged 52, was admitted to the roentgenologic service of the Philadelphia General Hospital, May 6, 1930. During October, 1929, she noticed that her left hand and arm were slightly swollen and there was a prominence in the left supraclavicular region posteriorly. In December she noticed that her left eyelid drooped and that her left arm was becoming cold and numb, with tingling. In January, 1930, she noticed beginning weakness of the arm; on admission she could not move her fingers, and her arm was used with difficulty. She had slight dyspnea on exertion and an occasional cough which was slightly productive.

Physical Examination.—The chest and abdomen were normal. The left pupil was contracted and did not react to light, and the palpebral fissure was narrowed. The left arm was larger than the right. There was normal motion of the shoulder and elbow, but there was loss of power in the fingers. There was a firm mass the size of a hen's egg at the base of the neck, which was quite tender.

Neurologic examination by Dr. Ornsteen was reported as follows: "A succulent paralysis of the left hand in the ulnar and median distributions. There was an area of hyperalgesia on the ulnar side of the forearm. Left oculosympathetic palsy and lack of sweating of the left side of the face. In part, this is a Klumpke's paralysis."

Roentgen Examination.—May 7, 1930, roentgenograms of the chest showed a small area of shadow in the left extreme apex. The proximal half of the first rib was missing. The patient received external irradiation treatment. July 24, the roentgenograms showed a portion of the destroyed area of rib partly recalcified. By October, the first rib was almost normal in appearance and the shadow was fainter. There had been no vertebral involvement.

Comment.—It is interesting to note that this patient was treated by radium for a carcinoma of the cervix uteri at another hospital, Dec. 24, 1926, receiving a dosage of 2,400 mg. hours. There was no recurrence. This led to a preliminary diagnosis of metastatic carcinoma, but in the absence of other evidences of metastases and in view of the rather typical clinical characteristics and roentgen findings and the length of time following the uterine treatment, I was strongly inclined to regard this growth as a primary upper pulmonary sulcus tumor. The patient did respond well to irradiation for a time, but later she grew worse and died Nov. 26, 1930. There was no autopsy, and no biopsy was made. The cause of death remains uncertain in the light of the comparatively small growth.

CASE 7.—*History.*—Mrs. E. P., aged 32, was admitted to the roentgenologic service of the Philadelphia General Hospital, Aug. 17, 1929. In November, 1927, at a previous admission, a carcinoma of the cervix uteri, stage 3, was discovered during a routine examination for supposed pellagra. This was successfully treated by cautery, intracervical radium implants, extracervical radon implants and external roentgenotherapy. There was no local recurrence. The history obtained on the

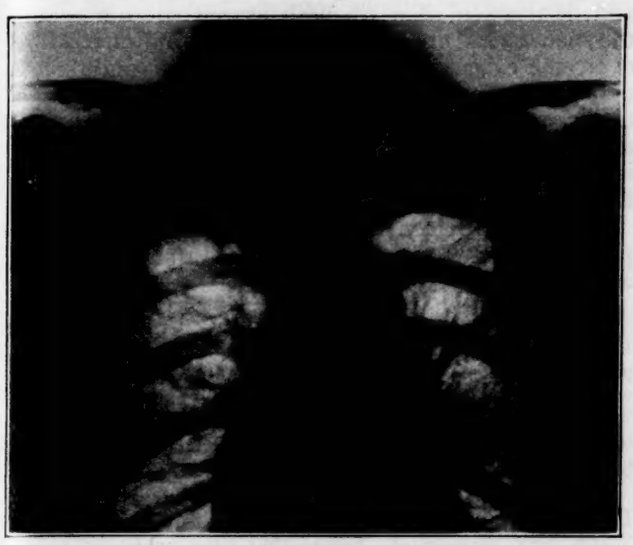

Fig. 2 (case 5).—Roentgenogram of the chest, showing an increased density in the right apex and some rib destruction.

patient's second admission brought out the fact that two months before she began to have pain in the left scapular region, numbness of the left hand and forearm and weakness of the hand.

Physical Examination.—Examination on admission revealed the following relevant clinical data: a small, hard and tender nodule at the base of the neck on the left side; numbness of the left hand and forearm and loss of grip in this hand; muscular atrophy of the shoulder girdle; distended veins of the neck, left upper part of the chest, shoulder and upper third of the arm, and diminished reflexes on this side. The left pupil was contracted and the left lid ptosed. It is interesting to note here that shortly before death, two months later, and during a severe chill followed by a temperature of 106.5 F., the left side of the face was very pale and the rigid side flushed, with a rather sharp line of demarcation between. This disappeared after the chill. The chest on admission gave an impaired percussion note on the left side above the scapula and down to the first rib anteriorly.

Roentgen Examination.—Roentgenograms of the chest, Aug. 14, 1929, revealed no evidence of metastases in the lungs or mediastinum, but showed a circumscribed shadow in the left apical region extending down to the lower border of the first rib (fig. 3). There was no evidence of bone involvement. A second examination, particularly for the shoulder and ribs, September 27, showed partial destruction of the first rib, especially the head and neck. There was probably some destruction of the transverse process of the seventh cervical vertebra. Another examination, October 16, showed more destruction of the first rib and of the sides of the bodies of the sixth and seventh cervical and first thoracic vertebrae. The tumor shadow appeared larger. There was still no lung metastasis. The patient died October 29. Autopsy and biopsy were flatly refused. Brain metastasis was a probable cause of death.

Comment.—At the time this was regarded as another independent upper pulmonary sulcus tumor similar to the others. While the uterine carcinoma did not recur locally, the condition in this case might have been a metastatic process, but I was inclined to believe, at the time I saw the patient, that it was not.

DIFFERENTIAL DIAGNOSIS

All the foregoing cases have seemed to present clinical and roentgenographic characteristics which would warrant the inclusion of the tumors in a group which could be recognized as a pathologic entity. Prominent among the clinical phenomena were pain around the shoulder and down the inner side of the arm, and often the ulnar side of the forearm, loss of power and wasting of the muscles of the hand, Horner's syndrome and signs mainly of dulness in the apex of the chest. The roentgenographic appearances were a comparatively small and circumscribed shadow in the apex due to lung displacement, and destruction of the posterior portions of one or more ribs and the adjacent articular and transverse processes and possibly a little of the sides of the bodies of one or more vertebrae. There was a striking lack of intrathoracic metastasis. Practically all these characteristics are essential for the diagnosis of the lesion. The shoulder pain was mostly posterior and high in the axilla, and sometimes but not always preceded the extension down the inner side of the arm and the ulnar aspect of the forearm. Wasting or weakness of the hand was recorded in three cases (1, 6 and 7). Horner's syndrome was noted in every case and is an essential manifestation. It was variable as to the time of onset. In cases 6 and 7 it was noted two months after the onset of pain, and in case 3 it became evident nine months after the patient was first seen. The apical shadow was known to precede any bone involvement in cases 2, 3 and 7. The number of ribs involved varied from one to three, always the first, second or third. Destruction sometimes began in the first and sometimes in the second. The vertebrae were involved in five of the seven cases. Five of the seven patients were males. Both females gave a history of previous uterine carcinoma. The left side was involved in four cases and the right in three.

Fig. 3 (case 7).—Roentgenogram of the chest, showing the circumscribed apical shadow. Note the upper arrows pointing to the second rib and to the head and neck of the first rib, both of which are intact.

Because of the comparative rarity of this tumor, those who are not entirely familiar with it are apt to confuse it with other conditions which present only portions of the diagnostic complex. On the other hand, the condition is often overlooked because of incomplete roentgenologic studies, especially in examining only the shoulder for causes of shoulder pains. I have made it a routine to examine fluoroscopically the neck and chest

of every patient who comes for an examination of a shoulder because of pain.

The common association of apical shadows and shoulder and arm pain in cases of primary lung tumors of the upper lobe, tuberculosis or certain mediastinal tumors is frequently ascribed to this tumor. For example, Henderson[2] has reported eight cases with apical chest tumors in which shoulder and arm pains were outstanding symptoms, physical signs were not prominent, the Horner syndrome was absent and the roentgenograms showed an apical shadow, often far more extensive than any of the cases in this collection, and without bone involvement. In my previous communication, I showed that a proved apical primary lung carcinoma could produce extreme pain even when scarcely detectable roentgenographically. Ribs may be involved by metastasis in these cases, as illustrated in the following example:

CASE 8.—*History.*—L. S. T., a man, aged 47, was admitted to the University Hospital, Aug. 4, 1928, on the service of Dr. Gabriel Tucker. A dry cough started in October, 1927. In December, he began to have pain in the right shoulder and

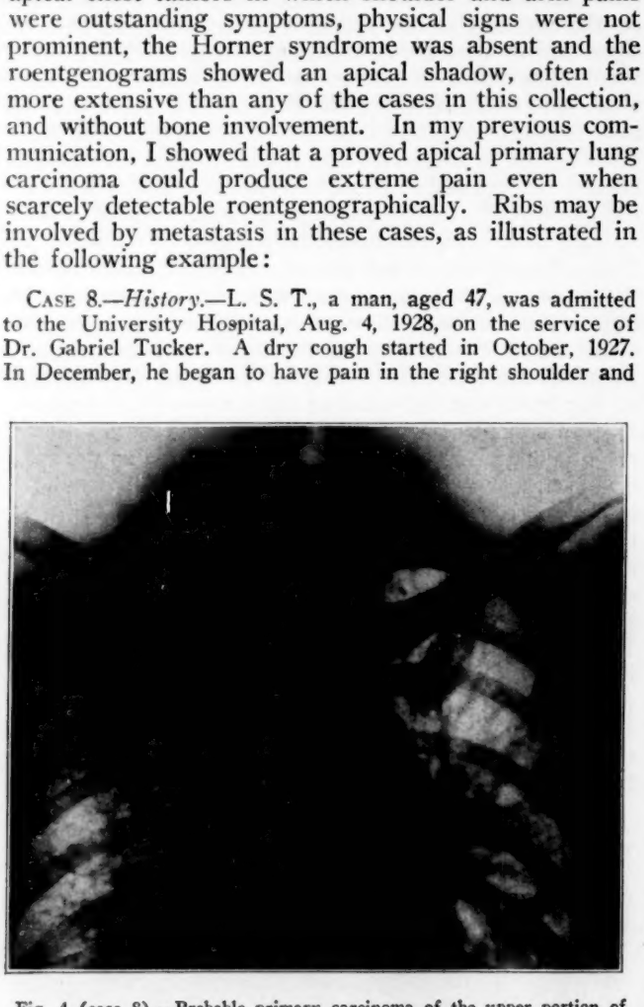

Fig. 4 (case 8).—Probable primary carcinoma of the upper portion of the right upper lobe with destruction of the posterior part of the third rib and metastasis to the mediastinum. This is an oblique view to show the mediastinal mass to better advantage.

upper right part of the chest. In June, 1928, he first noticed a sense of pressure in the upper part of the chest and began to be dyspneic. The cough then became productive and the sputum was blood streaked.

Examination.—There was complete paralysis of the right vocal cord and loss of tension in the left. The base of the neck showed considerable enlargement on the right side, and there seemed to be a mass projecting upward through the thoracic inlet. There was an impaired percussion note over the upper right part of the chest posteriorly, with almost absent breath sounds and evidences pointing to obstruction of the right upper lobe bronchus. Lung or mediastinal tumor was suspected.

Roentgen Examination.—There was evidence of a lesion involving the upper right part of the thorax, casting an indefinite homogeneous shadow extending down to the second interspace and outward along the axillary aspect of the thorax at this level. There was complete destruction of the posterior portion of the third rib adjacent to this shadow (fig. 4). The irregular density below suggested an infiltrating neoplastic process or tuberculosis. There was evidence of an old tuberculous lesion in the left apex, and slight local obstruction was noted in the adjacent portion of the esophagus.

Bronchoscopic Study.—There were compression of the trachea from the right, partial obstruction of the right bronchus and flattening of the carina. The mucosa around the upper lobe orifice was granular and bleeding. Carcinoma of the lung with mediastinal metastasis was suggested.

Comment.—While this patient had an apical neoplasm and destruction of a rib with associated pain around the shoulder, he did not have Horner's syndrome. Moreover, there was a bilateral recurrent laryngeal nerve paralysis. This combination was not characteristic of upper pulmonary sulcus tumor, and the roentgen appearances correlated with bronchoscopic observations indicated a probable primary lung cancer metastasizing to the mediastinum and the rib.

Osteogenic sarcomas in the apex of the chest may produce similar roentgenographic appearances and cause a variety of symptoms, as in the following instance:

CASE 9.—This case is reported with the permission of Dr. J. B. Carnett and Dr. F. H. Leavitt. I never saw the patient and did not see his roentgenograms until the time of writing this report. His condition had been diagnosed as an "apical chest tumor," but a study of the symptomatology and the roentgenograms has plainly indicated that this case cannot be included in this group.

History.—E. H., a man, aged 79, was first seen by Dr. Leavitt, Jan. 10, 1932. He had been in a normal state of health until three weeks before that time, when he noticed subjective paresthesia of the lower extremities. A week later, these extended up to a girdle below the nipple level, with marked hyperesthesia above. There was no loss of bladder or bowel control, and the patient had no pain referable to either shoulder or arm. He was blind in one eye and almost blind in the other as a result of glaucoma. No mention was made in the history of Horner's syndrome.

Roentgen Examination.—A series of roentgenograms was made at the Graduate Hospital, February 8 to 12, after an injection of iodized rape seed oil into the cisterna. These showed evidence of a block between the first and third thoracic segments of the cord. The report stated that the roentgenograms showed evidence of an infiltrating tumor at the apex of the right lung which had eroded the second rib, the lamina and part of the bodies of the second and third thoracic vertebrae and had encroached on the spinal canal posteriorly.

Subsequent Course.—The patient rapidly became worse, and developed complete paralysis beyond the lesion, both motor and sensory, and loss of bladder and bowel control. He died about March 10.

Comment.—I do not believe that this growth can be classed as an upper pulmonary sulcus tumor as it was supposed to be. The clinical characteristics are entirely different, in the absence of shoulder pain and Horner's syndrome and the presence of a complete paraplegia. From the roentgenographic appearance I should regard the lesion as probably an osteogenic sarcoma primary in the third rib and not the second. It might be a metastatic carcinoma or myeloma. The third rib showed evidence of an expanding tumor just anterior to the seat of its complete destruction. Where destruction was complete there was a considerable amount of calcification within the tumor. The tumor apparently did involve the transverse process, articular process and lamina, and had entered the spinal canal. Such a growth would be away from the spinal roots, common trunk divisions and cervical sympathetic plexus and its supply until late. An osteogenic sarcoma can spread from one bone to another in such a locality, where there are practically fixed articulations. The progress of the growth was far too rapid for pulmonary sulcus tumor. This is an interesting case for differential diagnosis.

2. Henderson, W. F.: Roentgen Study of Apical Chest Tumors, Am. J. Surg. 8: 414 (Feb.) 1930.

Pulmonary tuberculosis may simulate an upper pulmonary sulcus tumor under certain circumstances, in producing a similar shadow and Horner's syndrome. Such a case is illustrated by the following example:

CASE 10.—*History.*—M. T., a woman, aged 59, had a cough of fifteen years' duration. One year before her admission to the University Hospital a roentgenologist diagnosed her condition as " a malignant tumor, possibly an endothelioma in the apex of the right lung connected with the mediastinum," and she was treated for this supposed condition. Our roentgenologic examination, made a year later, showed the same apical shadow and the same interpretation was made, although it was incorrect. The patient was operated on, and a definite firm mass was found in the apex of the lung. It proved to be tuberculous. This case has been reported by Kornblum and Ellison[3] as one of tuberculous atelectatic cirrhosis of the lung. There was no reason for a diagnosis of upper pulmonary sulcus tumor.

COMMENT

1. *Location of Tumor.*—Practically the exact point of origin and location of the tumor under discussion have been determined in three ways: by operation, by roentgenographic examination and by a study of the progression of symptoms. There were no autopsies.

(*a*) *Operation:* Two patients were operated on. The findings in case 1 were of no more value than the roentgenographic localization. In case 2, the entire growth was exposed and was found extending round the posterior aspect of the upper thoracic cavity with its inner extremity between the transverse processes of the first and second thoracic vertebrae. It was thought to be an endothelioma of the pleura, but was not removed.

(*b*) *Roentgen Examination:* This showed an apical shadow and destruction of the upper ribs and transverse processes and occasionally the sides of the bodies of the vertebrae. The ribs were primarily involved for a considerable distance on their posterior aspects. The growth began in the first rib in four cases and in the second and third in two others. It was known to have been preceded by the apical shadow in two instances and may have been in others, possibly all. Rib involvement began from three to nine months after the onset of symptoms. Transverse processes were infiltrated in five cases, but not always the one corresponding to rib involvement. Erosion of the bodies of the vertebrae occurred in three of the cases and was a late manifestation.

(*c*) *Progression of Symptoms:* Of the prominent neurologic signs, posterior shoulder pain was due apparently to involvement of the origin of the posterior divisions of the first and possibly the second thoracic common trunks (fig. 5). Pain high in the axilla was caused by involvement of the branch of the first thoracic not involved in the formation of the brachial plexus and a branch of the intercostohumeral nerve. The upper arm pain corresponded to the supply of the intercostohumeral from the second thoracic and the lesser internal cutaneous from the first thoracic. Pain on the ulnar aspect of the forearm suggested the supply of the internal cutaneous from the eighth cervical and first and second thoracic nerves. Muscular wasting involved the interosseous muscles and those of the hypothenar eminence and the web of the thumb. This would correspond to an ulnar supply from the eighth cervical and first thoracic nerves. Horner's syndrome would place the lesion in the region of the common trunks from the eighth cervical and the first thoracic at least. In cases 3 and 4 this phenomenon appeared several months after the onset of symptoms.

This neurologic localization narrows the actual seat of the lesion to a comparatively small area.

2. *Histologic Origin of Tumor.*—Even with the meager histopathologic data at hand, one is obliged to consider this tumor as epithelial in origin. A review of the slides in case 1 showed spinocellular carcinoma. The original pathologic report on case 2 was carcinoma; no further biopsies were obtained. If the growth were endothelioma of the pleura, why should such a growth in this one location always infiltrate bone and seldom or never occur elsewhere? One can practically rule out primary lung cancer. Certainly it does not produce Horner's syndrome as an early manifestation. The type of cell in case 1 is not so likely to be found in an apical lung lesion so far away from the larger bronchi, according to Dr. McFarland.

It occurred to me that this tumor as a distinct entity might take its origin in an embryonal epithelial rest. The chromaffin bodies were suggested as a possibility

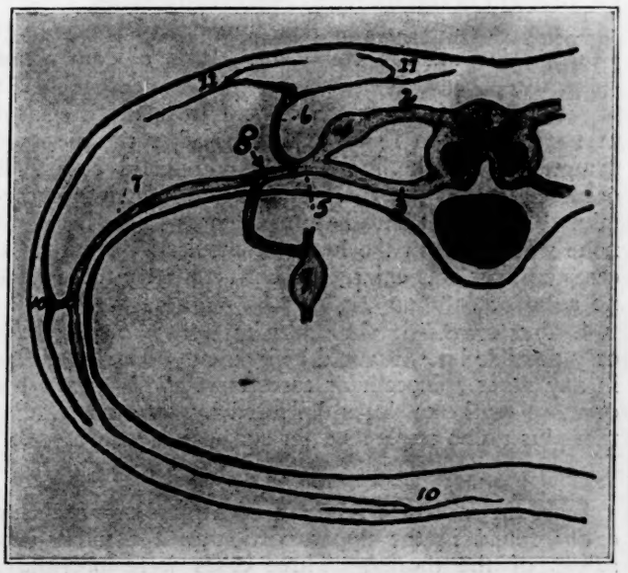

Fig. 5.—Diagram of the formation and division of the spinal nerves and approximate location of the superior pulmonary sulcus tumor: *1*, spinal cord; *2*, *3*, posterior and anterior roots; *4*, spinal ganglion on posterior root; *5*, common trunk, at the convergence of anterior and posterior roots just before emergence from foramen; *6*, posterior primary division, coming off from the common trunk just after emergence and supplying the muscles and integument of back; *7*, anterior primary division, supplying the lateral and anterior aspect of the lower neck and trunk and upper extremity; *8*, approximate location of the tumor; *9*, sympathetic ganglion; *10*, lateral and anterior branches of the anterior primary division supplying the integument; *11*, cutaneous branches of the posterior primary division.

by Dr. Bothe, especially as death from a small tumor without detectable metastases might be due to some unusual disturbance in the chromaffin system. Dr. McFarland has emphatically stated, however, that the type of cell in case 1 was not compatible with this origin.

The next thought was a possible origin from an embryonal rest similar to those of branchiogenic carcinomas. According to Dr. McFarland this would be compatible with the cell type of case 1. Certainly I have not been able to refute such a theoretical origin. A brief résumé of the formation of the branchial arches and clefts will serve to explain this suggestion to better advantage. After the formation of the cephalic portion of the neural tube in the embryo, a series of five parallel bars or visceral arches appears on either side of the

3. Kornblum, K., and Ellison, R. T.: Tuberculous Atelectatic Cirrhosis of the Lung, Am. J. Roentgenol. **25**: 620 (May) 1931.

head above the heart tubes (Piersol[4]) with furrows between on the outside and corresponding pharyngeal pouches within. It is the latter that are of particular interest. The first pharyngeal pouch develops into the eustachian tube and middle ear; the second shows its persistence in the fossa of Rosemüller; the third and fourth are concerned in the formation of the thymus and the thyroid body. According to Keibel and Mall,[5] the development of the fifth pharyngeal pouch, long overlooked and disputed, is worthy of consideration. A process from it becomes converted into the ultimobranchial body. This may migrate variously, or it may be enclosed in the thyroid body or go elsewhere to unknown locations. In all vertebrates below mammals it remains as an independent structure. In higher mammals it usually fuses with the middle thyroid anlage, but has been found as an independent body. It can be said to have a variable behavior throughout the mammalian series. What really becomes of it in man, should it exist, is uncertain. However, this or some similar embryonal rest might be the origin of this tumor. It is hoped that the way is paved for a correct solution of the problem in the future as opportunity arises.

3. *Prognosis.*—So far this tumor has resisted all efforts at irradiation treatment. It is obviously not subject to surgical removal, although it is accessible. It is rather rapidly fatal. In cases 1 to 6, death ensued in from eleven to fourteen months after the onset of symptoms. In the more or less doubtful case 7 it occurred in four months. The cause of death is uncertain. There must have been metastases somewhere, but none was found in the lungs or mediastinum. In one case the liver was enlarged. Unfortunately there were no autopsies.

4. *Treatment.*—In the light of present knowledge, the only possible benefit would be irradiation carried out as in any other spinocellular carcinoma. This means ten or more erythema doses delivered by external irradiation plus radon implants after surgical exposure.

SUMMARY

1. Seven cases are reported of a peculiar neoplastic entity found in the upper portion of the pulmonary sulcus of the thorax. Three cases were previously reported and four more recent ones are added.

2. The tumor is evidently epithelial in its histopathology, but its exact origin is uncertain. It seems likely that it may arise from some embryonal rest.

3. Its point of origin is always the same, and it produces constant and characteristic clinical phenomena of pain in the eighth cervical and first and second thoracic trunk distribution, wasting of the muscles of the hand and Horner's syndrome.

4. The roentgen observations are typical, consisting of a small, sharply defined shadow in the apex of the thorax, destruction of one or all of the upper three ribs in their posterior aspects and the adjacent transverse processes, and sometimes slight vertebral body erosion.

4. Piersol, G. A.: Human Anatomy, ed. 8, Philadelphia, J. B. Lippincott Company, vol. 1, p. 59.
5. Keibel, F., and Mall, F. P.: Manual of Human Embryology, Philadelphia, J. B. Lippincott Company, 1912.

A Means of Opening Up Problems.—Psychoanalysis may be regarded essentially as a means of opening up, viewing, and analyzing problems that involve individual human lives. There are inherent in psychoanalytic doctrines the values of the microscope and of the telescope for investigating worlds small or distant.—Wile, I. S.: Psychoanalysis and Religion, *Ment. Hyg.* **16**:532 (Oct.) 1932.

AN IMPROVED CONCENTRATION TEST OF RENAL FUNCTION

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AND
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In a previous paper,[1] the value of the specific gravity of the urine as a test of kidney function was discussed. It was pointed out that if the specific gravity of the urine is to be employed as a functional test, certain conditions must be fulfilled: First, a sufficient amount of solid wastes must be presented to the kidneys for excretion. This was obtained by a special diet. Second, the amount of water available for the excretion of these wastes must be limited. This condition was observed by restricting the fluid intake. The purpose of these conditions was to impose maximal strain on the kidneys and to secure the most concentrated urine possible.

Under these conditions it was found that normal individuals were able to concentrate the urine to a specific gravity of 1.026 or above. Diseased kidneys were unable to concentrate to 1.026. The more severe the renal damage was, the lower the specific gravity attained.

There were certain practical objections to this test: First, the subjects were confined to bed for a three day preparation period. This requirement was inconvenient for many patients and consequently precluded the use of the test by many physicians. Second, the amount of food in the diet was often too great for ill patients to consume.

The purpose of the studies reported here was to surmount these difficulties, to simplify the test and to increase its reliability.

Several combinations of different conditions were tried. The conditions finally accepted were as follows: At 10 p. m. of the night preceding the test, all fluid and food, except a special diet, were withheld for thirty-eight hours. From 8 a. m. the following morning until 8 a. m. twenty-four hours later, all urine was collected as one specimen, specimen 1. During this twenty-four hour period the special diet (table 1) was taken. No other food or fluid was allowed during the remainder of the thirty-eight hour period. Specimen 2 was collected at 10 a. m., ending the thirty-sixth hour of the "water fast." Specimen 3 was collected at 12 noon, ending the thirty-eighth hour of the "water fast." The subjects were allowed either their usual activity or bed rest.

The specific gravity of each of these three specimens was determined. This was done at 25 C. by the weight method, weighing bottles of about 5 cc. capacity being used. The Tycos micro-urinometer was employed conjointly with the weight method. If one determines the proper place to read the meniscus by checking with distilled water, this instrument is accurate enough for clinical purposes and is simple to use.

Albumin of the urine was determined quantitatively by the Folin gravimetric method.[2] Since albumin raises the specific gravity of urine, a correction of the observed specific gravity was made for its presence.

From the Department of Internal Medicine, University of Michigan Medical School.

1. Lashmet, F. H., and Newburgh, L. H.: The Specific Gravity of the Urine as a Test of Kidney Function, J. A. M. A. **94**: 1883 (June 14) 1930.
2. Folin, Otto: Laboratory Manual of Biological Chemistry, New York, D. Appleton & Co., 1923.

For every 1 per cent of albumin present in the urine, 0.003 was subtracted from the observed specific gravity. This factor was determined by noting the effect on the specific gravity of solutions of varying concentrations of pure egg albumin (chart 1).

Total solids and water of the urine were determined by the usual method of freezing and desiccating in vacuo over sulphuric acid. Albumin is not included in the total solids.

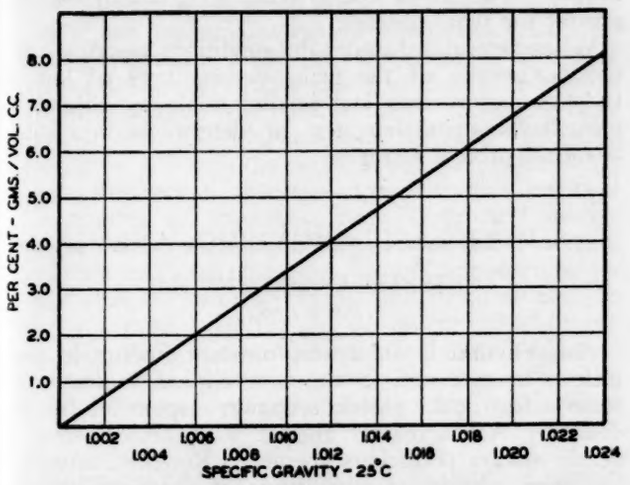

Chart 1.—Effect of protein (egg albumin) on specific gravity of a solution, showing corrections necessary in test when albuminuria exists.

Inorganic solids were determined by ashing.

Organic solids were calculated as the difference between total solids (minus protein) and inorganic solids.

The diet used contained protein 40 Gm., fat 104 Gm., carbohydrate 204 Gm. and 1,900 calories. One gram of sodium chloride was added. Such a diet contains 6.536 Gm. of nitrogen, 9.1 Gm. of inorganic solids, 3.286 Gm. of chlorine, and an excess of available base equivalent to 18 cc. of normal solution.

The total water available when such a diet is fed is approximately 700 Gm. for twenty-four hours. This was determined as follows: The water of the food was determined by desiccation. The average for sixteen menus was 372 Gm. The water of oxidation of the diet alone is 250 Gm. This diet is submaintenance for many individuals; consequently, body protein and fat must be oxidized. Thus the actual water of oxidation would be greater than that coming from the diet alone. A total water and caloric exchange was done on three normal and six abnormal individuals in this series by the method described by Newburgh and Wiley.[3] The amount of water available from all sources when such a diet is fed averaged 706 Gm. in twenty-four hours for this group.

Since the average individual loses from 1,000 to 1,500 cc. of water daily by evaporation, another 1,000 to 1,500 cc. as urine, and another 100 to 200 cc. in the stool, it is evident that a total water intake of only 700 cc. daily imposes severe water restriction. In addition to this small water intake, the amount of total solids presenting themselves for excretion is maintained at a high level by the diet. Thus the conditions of this revised test place the kidneys under a distinctly heavier load than the former test, but for a shorter period of time.

3. Wiley, F. H., and Newburgh, L. H.: An Improved Method for the Determination of Water Balance, J. Clin. Investigation **10**: 723 (Oct.) 1931.

Normal individuals and those with renal disease were studied under the conditions just described. The ten normal subjects were young adults, chiefly interns, in whom there was no evidence of renal disease. The abnormal group consisted of patients with various types of renal damage. These included two cases of acute nephritis, six cases of essential hypertension, five cases of chronic nephritis with edema, seven cases of chronic nephritis and hypertension, four cases of pyelonephritis, and two cases of renal tuberculosis.

It was found that normal persons are able to concentrate the urine to a specific gravity between 1.029 and 1.032. The most concentrated specimen was usually the first. The average volume of urine in each specimen was as follows: specimen 1, 450 cc.; specimen 2, 36 cc.; specimen 3, 36 cc.

Patients with renal disease are unable to concentrate the urine to a specific gravity of 1.029. The range of variation is from about 1.010 to 1.029. The more severe the disease is clinically, the lower the concentrating ability. This fact alone influences the concentrating ability of the kidneys and not the type of disease present.

The group with essential hypertension concentrated the urine to a specific gravity between 1.025 and 1.029. This group was the only one which had such a small range of variation and at such a high level. Presumably, this is added evidence of the slight involvement of the kidneys in this disease.

During the past year, this revised test has been used as a routine procedure in conjunction with the phenolsulphonphthalein test and estimation of the blood nonprotein nitrogen on all patients in whom a determination of renal function was desired. The results have repeatedly demonstrated the ability of normal subjects to concentrate the urine to a specific gravity of 1.029, or

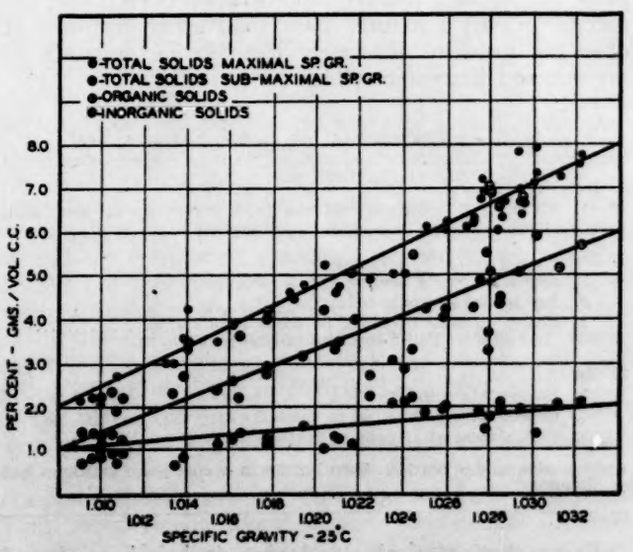

Chart 2.—Relation of specific gravity of the urine to the total solids and of organic and inorganic solids to total solids.

above, while diseased kidneys cannot. It has been further observed that the maximal concentrating ability is usually as low as 1.020 before the phenolsulphonphthalein excretion is decreased, and as low as 1.010 before the blood nonprotein nitrogen is elevated. Consequently, this test has the additional advantage of demonstrating lowered kidney function in that abnormal group who concentrate between 1.020 and 1.029, at which level the other two tests are normal.

Although the inability of diseased kidneys to concentrate the urine to a high specific gravity is a consistent observation, it is necessary to know how accurately the specific gravity measures the amount of total waste products in the urine. Chart 2 demonstrates that, when the kidneys are excreting urine at a maximal concentration, the specific gravity is quite an accurate measure of total solids in solution. The greatest variation is in those specimens obtained under submaximal conditions. Dissimilar solids, such as urea and sodium chloride, do not affect the specific gravity similarly at the same concentration. It is probable that, under submaximal conditions, such substances are not present in that proportion at which the specific gravity is an index to the total solid content. Under maximal conditions, although there is a variable ratio of organic to inorganic solids, their relative concentration is such that the specific gravity measures their total concentration. It does not measure accurately the relative amounts of organic and inorganic solids.

TABLE 1.—*Menu of the Diet*

Food	Grams	Approximate Measure
Breakfast		
Corn flakes	15	½ cup
Bread (toast)	60	2 slices, ⅜ inch
Butter	20	2 squares, or 1 level tablespoonful
Cream 40%	50	¼ cup
Sugar	13	1 tablespoonful
Lunch		
Beef steak	100	4 by 4 by ½ inch
Potato (baked)	80	1-2½ inches diameter
Crackers	16	4
Butter	20	2 squares, or 1 level tablespoonful
Dates	70	10
Dinner		
Potato (baked)	80	1 as above
Lettuce	100	¼ head
Crackers	16	4
Butter	20	2 squares, or 1 level tablespoonful
Dates	30	4
Peaches (canned) (no juice)	85	1 half

In addition to foregoing, 1 Gm. of sodium chloride (table salt), or ¼ level teaspoonful. No other salt is to be added to cooking or otherwise

TABLE 2.—*Instructions for Renal Function Test*

1. Date: .....
   1. At 10 p. m. stop all fluid and food, except special diet, until noon ..... (38 hours)
2. Date: .....
   1. At 8 a. m. empty bladder and discard urine
   2. Eat special diet only today
   3. Collect all urine from 8 a. m. today until 8 a. m. ..... in bottle 1. Finish specimen promptly at 8 a. m.
3. Date: .....
   1. No breakfast today
   2. Collect urine at 10 a. m. in bottle 2
   3. Collect urine at 12 noon in bottle 3

Collect urine in dry bottles. Keep bottles in a cool place and keep well stoppered

From the practical standpoint, it has been found expedient to instruct the patient to be tested according to an outline of directions (table 2). If the individual is an outpatient he is provided with this outline, a copy of the diet (table 1), and three clean, dried and labeled specimen bottles. With these precautions, no difficulty has been encountered in having the test carried out in detail.

From the physician's standpoint, several precautions must be observed. Correction for albumin as described must be made. The temperature of the urine must be high enough to maintain all the solids of the urine in solution. It must also be at the same temperature at which the urinometer is calibrated. If the specimens are collected by hospital attendants, the dilution effect caused by water in undrained urinals and bed pans must be avoided.

SUMMARY

Under definitely controlled conditions, normal kidneys are able to concentrate the urine to a specific gravity between 1.029 and 1.032, while diseased kidneys cannot. The lower the concentrating ability is, the greater the renal damage.

When determined under the conditions described, the specific gravity of the urine detects lowered kidney function before this fact is discernible by either the phenolsulphonphthalein test or determination of the blood nonprotein nitrogen.

SIMPLE ACHLORHYDRIC ANEMIA

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CLEVELAND

Achlorhydria is an almost constant finding in pernicious anemia and is the best clinical indicator of some defect in the gastric secretion responsible for the disease. A macrocytic anemia with achlorhydria is nearly always pernicious anemia.[1] Recently, attention has been focused on other types of anemia related to achlorhydria, and from numerous studies a clinical entity, just as definite as pernicious anemia, is now recognized in which there is a nonmacrocytic anemia of obscure origin accompanied by achlorhydria. Faber [2] was the first to emphasize the finding of anemia other than pernicious anemia in achlorhydria; Kaznelson [3] is largely responsible for separating as a clinical entity this type of anemia; Witts [4] has published the best clinical review of the subject. The clinical syndrome has been given a variety of names, such as achylic chloranemia (Kaznelson, Reimann and Weiner [3]) idiopathic hypochromemia (Mills [5]), hypochromic anemia with achlorhydria (Waugh [6] and Altschuller [7]), primary hypochromic anemia (Dameshek [8]), chronic chlorosis (Mettier and Minot [9]), simple microcytotic anemia with achylia (Gram [10]), chlorotic anemia with achlorhydria (McCann and Dye [11]), simple (non-addisonian) achlorhydric anemia (Hurst [12]) and sim-

From the Cleveland Clinic.

Read before the Section on Pathology and Physiology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints, a copy of which will be sent by the author on receipt of a stamped addressed envelope.

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8. Dameshek, W.: Primary Hypochromic Anemia (Erythro-Normoblastic Anemia), Am. J. M. Sc. **182**: 520-553 (Oct.) 1931.
9. Mettier, S. R., and Minot, S. R.: The Effect of Iron on Blood Formation as Influenced by Changing the Acidity of the Gastroduodenal Contents in Certain Cases of Anemia, Am. J. M. Sc. **181**: 25-36 (Jan.) 1931.
10. Gram, H. C.: A Study of the Development of Pernicious Anemia, Folia Haemat. **39**: 461-474 (Jan.) 1930.
11. McCann, W. S., and Dye, Jane: Chlorotic Anemia with Achlorhydria, Splenomegaly and Small Corpuscular Diameters, Ann. Int. Med. **4**: 918-930 (Feb.) 1931.
12. Hurst, A. F.: Achlorhydria and Achylia Gastrica, and Their Connexion with Addison's Anaemia—Subacute Combined Degeneration Syndrome and Simple (Non-Addisonian) Achlorhydric Anaemia, Quart. J. Med. **1**: 157-177 (Jan.) 1932.

ple achlorhydric anemia (Witts [4] and Davies [13]). The two features especially emphasized in all these titles are the low color index (hypochromemia) and the absence of free hydrochloric acid in the gastric secretion. The best name for the disease is simple achlorhydric anemia, as first suggested by Witts,[4] who has described the largest series of cases. The small number of cases reported in the literature is not a true indication of the frequency and importance of the disease. Kaznelson, Reimann and Weiner mentioned twenty-five cases;[3] Mills,[5] twenty-three cases; Waugh,[6] ten cases; Dameshek,[8] seven cases; Witts,[4] fifty cases; McCann and Dye,[11] five cases; Hare,[14] nine cases, and Davies, fifteen cases in detail;[15] he also mentioned a group of fifty-five cases.[13] Other groups of cases, such as Adamson and Smith's,[16] probably belong here, although the data are not complete enough to make this certain. Isolated cases have been reported by a number of workers. Both Witts and Davies included cases of symptomatic achlorhydric anemia together with those occurring without apparent cause. I have complete clinical records and blood studies on thirty-two cases. In the period during which these cases were studied, a number of other undoubted cases have been seen but are not included since either the gastric analysis or a complete blood study was lacking.

THE CLINICAL PICTURE

The multiplicity of symptoms and signs of simple achlorhydric anemia well explains the previous lack of recognition of the disease as a clinical entity. It seldom occurs in men. Mills [5] stated that the disease is confined to women; Dameshek [8] reported the cases of six women and one man; Waugh's [6] patients were all women; Witts' [4] group of fifty cases included only one man; three of Davies' [15] fifteen patients were men; McCann and Dye's [11] and Hare's [14] patients were all women. The series reported here includes thirty-one women and one man. All workers agree that most of the patients affected with this disease are from 30 to 50 years of age. In Witts' [4] series there was no patient under 20 years. I have seen one patient 14 years of age and one over 70 years. The age incidence for the group of thirty-two patients is shown in table 1.

TABLE 1.—*Achlorhydric Anemia, Age Incidence*

Age, Years	No. of Cases
Under 20	2
20–29	5
30–39	8
40–49	12
50–59	3
Over 60	2

Sixty per cent of my patients were between 30 and 50 years of age.

The great variety of symptoms is emphasized by all observers. Kaznelson, Reimann and Weiner [3] gave the following clinical description:

> The patients seek medical advice for various reasons. Often symptoms referable to the anemia are prominent—palpitation, fatigue, fainting attacks, pallor, pain in the bones. At other times symptoms of achylia such as diarrhea and loss of appetite are more in evidence especially when the anemia is only of moderate severity. All ages are affected and both males and females, the latter in only slightly greater numbers. No changes are found in the internal organs, except such as are dependent on the anemia, as heart murmurs and venous bruits. The spleen is never greatly enlarged. In some of the females disturbances of menstruation are present, which respond to treatment. Not infrequently changes in the tongue of the nature of Hunterian glossitis are found, vesiculation, burning of the tongue, atrophy of the papillae—just as in Addison's anemia in which, however, the changes are much more constant. Changes of a nervous character such as parasthesias, apparently due to affections of the posterior columns of the cord, also occur. Peculiar also are the alterations in the nails of the hands and feet, which we were able to recognize in some cases. The patients have typical hollow nails (koilonychia or spoon-nails) so that a drop of water does not roll off when placed on the nail. The nails are, in addition, very tender and brittle. All these changes in the nails disappear completely on treatment.

TABLE 2.—*Symptoms in Achlorhydric Anemia*

Symptoms	No. of Cases
Fatigue and weakness	19
Menorrhagia or other menstrual disturbances	10
Palpitation	8
Indigestion	7
Dyspnea	4
Diarrhea	3
Sore mouth or tongue	3
Anemia	2
Parasthesia	2
Dysphagia	1

Little can be added to this excellent description. One feature not mentioned by Kaznelson is the chronicity of the disease. One of our patients stated that ten years before her hemoglobin had been only 50 per cent; another had had 45 per cent hemoglobin eleven years before, when she was admitted to a hospital for an appendectomy. In every case in this series there was good clinical evidence that the anemia had been present for a number of years, and usually the patient seemed to have adjusted herself to the anemia much better than she would have to an anemia of equal severity due to some other cause. The obscure origin of the disease should also be emphasized. In some of the larger series,[17] cases of anemia are included which developed following operative procedures on the stomach resulting in achlorhydria. Such cases may be spoken of as symptomatic simple achlorhydric anemia, just as the development of pernicious anemia after gastrectomy should be designated symptomatic pernicious anemia. I have not included any such cases in my series, as it seems to me that the clinical entity should be described as including only the cases occurring without evident cause. The symptoms of which the patients in this group complained are summarized in table 2.

The menstrual disturbances, principally menorrhagia, were prominent symptoms. Excessive menstrual bleeding accentuates any anemia, and if it is a prominent symptom the underlying difficulty is often obscured. That menorrhagia alone is not responsible for the anemia is best shown by the fact that in every case the abnormal bleeding was relieved when the blood returned to normal after treatment. The digestive symptoms were varied and consisted largely of fulness after eating, gas and epigastic discomfort. The parasthesias I have considered as due largely to the anemia rather than to involvement of the cord, as no proof of a lesion in the spinal cord was demonstrable. One patient had the so-called Plummer-Vinson [18]

13. Davies, D. T.: Simple Achylorhydric Anæmia, Lancet **2**: 385-391 (Aug. 22) 1931.
14. Hare, D. C.: Simple Achylorhydric Anemia Treated by Iron, Brit. M. J. **2**: 888-891 (Nov. 14) 1931.
15. Davies, D. T.: Studies on Achlorhydria and Anaemia, Quart. J. Med. **24**: 447-467 (July) 1931.
16. Adamson, J. D., and Smith, F. H.: Chronic Chlorosis, Canad. M. A. J. **24**: 793-798 (June) 1931.
17. Witts (footnote 4). Davies (footnote 15).
18. Vinson, P. P.: Hysterical Dysphagia, Minnesota Med. **5**: 107-108 (Feb.) 1922.

syndrome of dysphagia with anemia. The difficulty in swallowing cleared up entirely with adequate treatment of the anemia. No unusual family history of anemia was found in these cases, except that the mother of one patient had died of pernicious anemia, and that of another of an obscure anemia said not to be pernicious anemia.

In every patient in this group there was a complete absence of free hydrochloric acid on simple or fractional gastric analysis (table 3). Histamine was not used as a routine measure, but free acid was occasionally observed after giving it, thus differing from pernicious anemia in which no acid is found even after the injection of histamine. The total gastric acid was low in every case. Pepsin was determined quantitatively in five cases by Fuld's method [19] and was always found to be low (16, 0, 32, 16, 12, 8, 0) as compared with a normal of from 256 to 512 units.

TABLE 3.—*Initial Blood and Gastric Findings in Thirty-Two Cases of Simple Achlorhydric Anemia*

Case	Red Blood Count in Millions	Packed Cells in per Cent of Normal	Hemoglobin in per Cent of Normal	Volume Index	Color Index	Saturation Index	White Blood Count	Icterus Index	Gastric Analysis: Free Acid	Gastric Analysis: Total Acid
1	3.12	50	50	0.81	0.81	1.00	.....	..	0	12
2	2.04	42	30	1.02	0.75	0.73	.....	..	0	40
3	4.04	56	46	0.69	0.57	0.82	.....	..	0	9
4	3.21	47	38	0.73	0.62	0.81	.....	..	0	15
5	4.54	69	62	0.76	0.67	0.88	4,600	..	0	18
6	4.03	57	42	0.70	0.52	0.74	5,700	2	0	8
7	4.00	60	53	0.75	0.66	0.88	6,600	..	0	12
8	3.39	73	53	1.07	0.79	0.72	.....	..	0	..
9	2.52	50	37	1.00	0.74	0.74	3,850	..	0	4
10	3.00	50	32	0.83	0.53	0.64	4,000	..	0	..
11	4.57	63	51	0.69	0.55	0.81	8,750	..	0	16
12	5.26	66	45	0.63	0.42	0.68	5,050	3	0	12
13	4.41	66	51	0.75	0.55	0.77	6,950	..	0	4
14	3.88	66	55	0.85	0.71	0.83	5,200	..	0	5
15	5.33	67	52	0.62	0.49	0.78	5,500	2	0	10
16	4.56	69	52	0.75	0.57	0.75	6,350	6	0	15
17	4.21	70	55	0.83	0.65	0.78	5,500	5	0	10
18	5.02	66	49	0.66	0.49	0.76	6,700	1	0	15
19	4.16	66	52	0.79	9.62	0.79	7,300	4	0	11
20	3.92	62	48	0.79	0.61	0.77	2,900	4	0	22
21	4.58	60	42	0.65	0.46	0.70	4,150	5	0	19
22	4.50	66	57	0.73	0.63	0.86	8,200	4	0	17
23	5.17	69	55	0.67	0.53	0.80	5,150	5	0	9
24	4.77	66	52	0.69	0.54	0.79	5,500	5	0	15
25	4.59	78	61	0.84	0.66	0.80	6,150	2	0	10
26	5.03	82	76	0.82	0.76	0.92	5,100	3	0	14
27	4.55	69	60	0.76	0.66	0.87	10,000	2	0	22
28	5.20	80	70	0.76	0.66	0.88	5,300	6	0	15
29	3.94	69	61	0.87	0.77	0.89	6,400	2	0	19
30	3.90	67	58	0.86	0.70	0.87	6,900	2	0	10
31	3.80	71	61	0.93	0.80	0.86	4,100	3	0	7
32	4.76	66	45	0.69	0.47	0.68	5,400	2	0	18
Mean	4.19	64	52	0.76	0.62	0.80	5,830	4		

THE BLOOD FINDINGS

The initial blood findings in the entire group are shown in table 3 and chart 1. The red cell count was relatively high, while the cell volume and the hemoglobin were both low. The determinations of cell volume were made by a method previously described,[20] and the hemoglobin estimations with the Haden-Hausser [21] hemoglobinometer, 15.4 Gm. of hemoglobin being used as 100 per cent. In more than half the cases the total cell volume was approximately two thirds of normal. The value for the individual cell volume was almost always low. In only four cases was the average cell volume, as indicated by the volume index, within normal limits (from 0.90 to 1.10). The color index was always below normal, and in only one instance was the saturation index normal, thus indicating that the decrease in hemoglobin was always greater than the decrease in cell volume. The leukocyte count was usually from 3,000 to 6,000. In only one instance was it as high as 10,000. The icterus index was determined in twenty cases, Murphy's technic being used,[22] and was never found to be above normal (from 4 to 6); the value was usually below normal. This pallor of the plasma is one of the most striking findings in examinations of the blood in this type of anemia. The low icterus index, indicating only a small amount of bile pigments in the plasma, explains the almost constant finding of blue sclerae, which have been

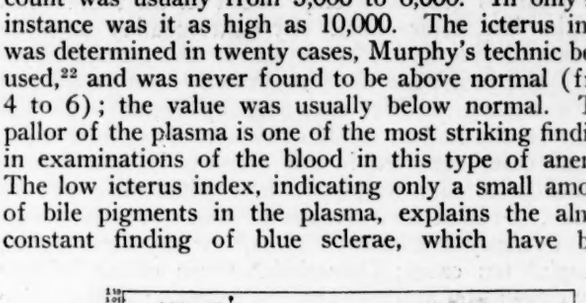

Chart 1.—Blood findings in thirty-two cases of simple achlorhydric anemia. Note the constant low total cell volume with relatively high red cell count. The mean corpuscular volume as indicated by the volume index is usually low. The mass of cells is seldom saturated with hemoglobin.

emphasized, as contrasted with the characteristic lemon-tinted sclerae of patients suffering from pernicious anemia.

The stained blood film showed an abundance of platelets, microcytosis and pallor of the erythrocytes. Anisocytosis was not marked, and few poikilocytes were seen. I have been much impressed by the almost constant finding of a number of banana-shaped red cells, although this is not pathognomonic of simple achlorhydric anemia. The differential count of the leukocytes

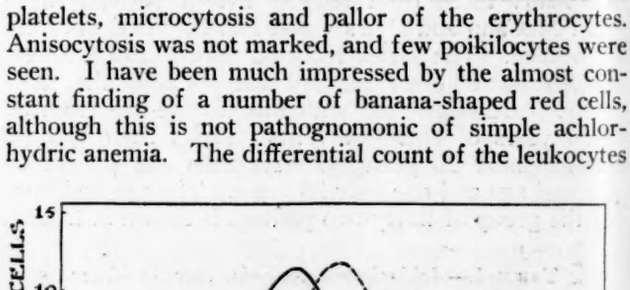

Chart 2.—The relative cell diameter in simple achlorhydric anemia, compared with pernicious anemia as shown in the distribution curve (Price-Jones). The continuous line indicates simple achlorhydric anemia; the continuous dotted line, pernicious anemia, and the broken line, normal.

was approximately normal, as shown in table 4. The average cell diameter was measured with a filar micrometer in five cases before and after treatment. The initial determinations were always low (table 5 and chart 2). The volume index is, however, a much better indication of cell size than is the cell diameter and is determined much more easily.[23]

19. Cole: Physiological Chemistry, Baltimore, Williams & Wilkins Company, 1926, p. 252.
20. Haden, R. L.: The Technic of Determination of the Relative Mass, the Individual Cell Volume, and the Volume Index of the Erythrocytes of Man, J. Lab. & Clin. Med. **15**: 736-748 (May) 1930.
21. Haden, R. L.: A New Hemoglobinometer, J. Lab. & Clin. Med. **16**: 68-72 (Oct.) 1930.
22. Murphy, W. P.: Biliary System Function Tests, Arch. Int. Med. **37**: 797-799 (June) 1926.
23. Haden, R. L.: Methods and Clinical Value of the Determination of the Size of the Red Blood Cell, Am. J. M. Sc. **181**: 597-605 (May) 1931.

TYPICAL CASE HISTORIES

The following cases are selected from the group to illustrate different clinical phases of the disease.

CASE 1.—A woman, aged 28, was first seen on Aug. 7, 1922, complaining of fatigue and weakness. These symptoms had been marked for only eight months, although their presence had been recognized for a number of years. Five years before admission she had been sent to another state for treatment with a diagnosis of pulmonary tuberculosis. She had been constipated, but had had no digestive disturbance. She had gained 7½ pounds (3.4 Kg.) in the preceding three months. The menses were regular and lasted only three days, but were somewhat excessive. There had been no other abnormal loss of blood. The weakness had been so marked as to require rest in bed at intervals during the day.

Physical examination showed nothing other than the evident anemia. Roentgenograms of the chest showed no abnormality, and the findings of the fluoroscopic study of the gastrointestinal tract were entirely negative except for pylorospasm. Urinalysis gave negative results. A fractional gastric analysis showed no free acid over a period of two hours. The red cell count was 4,040,000, the packed cells 56 per cent of normal and the hemoglobin 46 per cent, with a volume index of 0.69 and a color index of 0.57 (table 3, case 3). The patient was given hydrochloric acid and small doses of iron, and the tonsils and a questionable tooth were removed. She was seen at intervals for two years, during which time her blood showed little change.

She was not seen again until Jan. 13, 1927, when she returned saying that the hemoglobin had remained low except after a series of injections of iron, when it had reached 85 per cent. Again nothing of significance was found on examination. The erythrocyte count was now 3,050,000, the hemoglobin was 50 per cent, and the packed cells were 56 per cent of normal. Another gastric analysis showed no free acid. The patient was given ferrous carbonate, 30 grains (1.95 Gm.) daily, alternating with tincture of iodine by mouth. The hemoglobin quickly reached 83 per cent, but treatment was discontinued by the patient later. On Jan. 6, 1929, the red cell count was 4,190,000, and the hemoglobin, 48 per cent. The anemia again responded rapidly to treatment with iron and iodine, and when the patient was last seen on June 6, the red cell count was 4,400,000, the packed cells 80 per cent and the hemoglobin 80 per cent. This case illustrates the typical

TABLE 4.—*White Blood Count in Ten Cases of Simple Achlorhydric Anemia*

Case	Total White Blood Count	Differential Count				
		Polymorphonuclears	Eosinophils	Basophils	Monocytes	Lymphocytes
15	5,500	47	1	0	10	42
16	6,350	58	1	0	8	33
17	5,500	49	1	0	10	40
18	5,850	75	1	1	5	18
19	7,300	81	0	0	5	14
21	4,150	65	0	1	13	21
22	8,200	57	2	0	4	37
23	5,150	73	0	0	8	19
24	5,500	45	1	0	7	47
32	5,400	76	2	1	5	16

symptoms of fatigue, menorrhagia, the typical findings of microcytic and hypochromic anemia, the constant achlorhydria and the characteristic response to treatment with relapse on its discontinuance.

CASE 2.—A school teacher, aged 34, was first seen in April, 1931, complaining of palpitation, dyspnea and weakness. These symptoms had been present for a year and were increasing in severity. The menses had been irregular for the past year with intervals of five or six weeks between periods. Hyperthyroidism had been suspected as the cause of the symptoms and compound solution of iodine had been given without relief. The menstrual flow had been excessive since puberty. A liberal diet with meat once a day had always been taken. Aside from constipation there were no symptoms referable to the gastrointestinal tract.

General examination showed an evident anemia and diffuse enlargement of the thyroid gland. Pelvic examination revealed no abnormality. Examination of the blood showed 4,580,000 red cells, packed cells 60 per cent of normal and 42 per cent hemoglobin (table 3, case 21). Ferrous carbonate, 60 grains (3.9 Gm.) each day, was prescribed. Three months later the red cell count was 4,780,000, the packed cells 93 per cent of normal and the hemoglobin 83 per cent. Six months after beginning treatment examination of the blood showed approximately the same findings. All symptoms disappeared, and the periods became regular.

CASE 3.—A housewife, aged 51, was first seen in the Cleveland Clinic on Sept. 22, 1931, complaining of a difficulty in swallowing which had been progressing gradually for seven or eight years. This had not been accompanied by pain. During the past six months the difficulty in swallowing had

TABLE 5.—*Effect of Treatment on Diameter of Red Cells*

Case	Mean Red Cell Diameter	
	Before Treatment, Microns	After Treatment, Microns
6	6.9	7.8
16	7.2	7.7
18	7.0	7.7
21	7.2	7.8
23	6.8	7.5

been so marked that forty-five minutes or an hour was required to eat each meal, and the patient had lost 11 pounds (5 Kg.). She complained of easy fatigue. There were no digestive disturbances, sore tongue or parasthesias. On general examination, there was evident anemia and a state of undernutrition. The tongue was smooth and clean. The spleen was not felt. Esophagoscopy revealed no lesion to account for the difficulty in swallowing. Examination of the blood showed 5,170,000 red cells, 69 per cent of packed cells and 55 per cent hemoglobin (table 3, case 23), with a volume index of 0.67 and a color index of 0.53. Ferrous carbonate, 20 grains (1.3 Gm.) three times daily, was given. One month later the red cell count was 5,480,000, the packed cells 91 per cent of normal and the hemoglobin 84 per cent. The difficulty in swallowing disappeared entirely, and all other symptoms were alleviated.

CASE 4.—A woman, aged 22, was seen in September, 1928, complaining of menorrhagia. The menses had begun at 13 and had always been regular, but the flow had been excessive, usually lasting two weeks with each period. One year before and again in February, 1928, the patient had been confined to bed on account of weakness. The asthenia was so marked that the patient had had to give up her work and enter the hospital.

Examination showed an evident anemia and blue sclerae, but no other abnormal findings. Pelvic examination revealed nothing to account for the menorrhagia. Examination of the blood showed 2,040,000 erythrocytes, packed cells 42 per cent of normal and hemoglobin 30 per cent, with a volume index of 1.02 and a color index of 0.75 (table 3, case 2). Gastric analysis showed no free hydrochloric acid. Dilute hydrochloric acid, ferrous carbonate, 10 grains (0.65 Gm.) three times a day, and tincture of iodine were given. The menstrual periods became normal. Four months later the red cell count was 4,610,000, the packed cells 78 per cent and the hemoglobin 65 per cent. No later examinations were made.

PATHOLOGY

Weiner and Kaznelson,[24] in 1926, studied the bone marrow obtained from the sternum at biopsy in simple achlorhydric anemia and found a great increase in nucleated red cells which were always of the normoblastic type. They commented on this finding as follows:

This normoblastosis is really a surprising thing. There is no sign of hemolysis as one might expect to find if the anemia were due to hypoplasia of the erythroblastic apparatus and

24. Weiner, W., and Kaznelson, P.: Ueber die Zellige Zusammensetzung des Knochenmarkes noch Erfahrungen mittels der Sternalpunktion nach Seyfarth, Folia haemat. **32**: 233-261 (May) 1926.

analogous to the anemia of chronic infection, which is due to hypoplasia of the bone marrow. The fact that in spite of the anemia the number of normoblasts in the marrow remains high can be explained only by a disturbance of the maturation of the normoblasts, while the normoblasts are formed normally. The normoblasts accumulate in the bone marrow during the active stage of the disease and decrease with improvement in the blood picture; in this form of anemia, then, a disturbance in maturation of the normoblasts is apparently the factor which leads to a diminution of erythrocytes in the blood.

Kaznelson, Reimann and Weiner [3] reported the autopsy observations in one case in which the bone marrow was grossly hyperplastic. Witts [4] made the

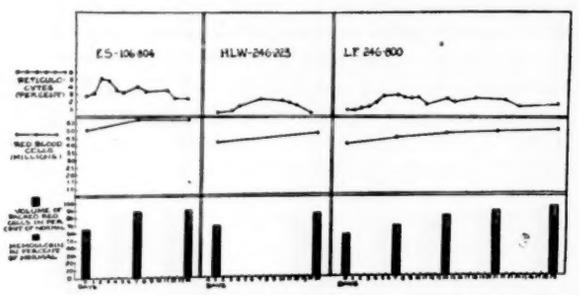

Chart 3.—Rise in reticulocytes on beginning intensive iron therapy.

same observation in a patient suffering from simple achlorhydric anemia who died following transfusion, and he mentioned the finding of an erythroblastic bone marrow by Spenser in one patient with simple achlorhydric anemia and polyarthritis. Dameshek [8] also found a great increase in the normoblasts in bone marrow obtained at biopsy.

RELATION OF ACHLORHYDRIA TO THE DISEASE

It is a well known fact that anemia is common in achlorhydria. Faber and Gram [2] emphasized the high incidence of anemia in achlorhydria, 11 per cent of their series of 207 cases having shown a simple anemia. Borgbjœrg and Lottrup [25] found a hemoglobin of less than 80 per cent in thirty-six of one

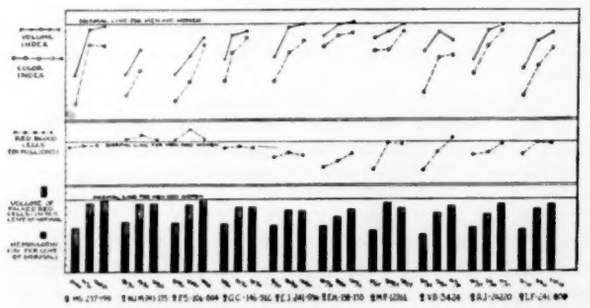

Chart 4.—Results of treatment in ten cases of simple achlorhydric anemia. The total cell mass rises rapidly without significant change in the erythrocyte count. The mean cell volume shows a marked increase.

hundred and fifty-two patients with achlorhydria. Seven of these had simple achlorhydric anemia, and five had pernicious anemia. Davies and James [26] found anemia more common with diminished gastric secretion than with abundant secretion. Morley and Roberts [27] found that fifteen of twenty patients who underwent gastrectomy with the Polya technic for ulcer developed a severe anemia which they attributed to the coincident achlorhydria. Ivy, Morgan and Farrell [28] observed a spontaneous anemia in thirteen of fourteen gastrectomized dogs and concluded that the achlorhydria was a predisposing factor for the development of anemia in that it reduced the factor of safety for digestion. The occurrence of pernicious anemia after gastrectomy has been reported by several observers. The relation of achlorhydria to anemia has recently been reviewed by Hurst.[12]

I have found on studying a hundred consecutive cases of achlorhydria in the Cleveland Clinic that twenty of the thirty men showed a hemoglobin percentage under 90, and two of these had pernicious anemia, while thirty of the seventy women had a hemoglobin under 80 per cent, among whom were six patients with pernicious anemia and eleven patients with simple achlorhydric anemia. Seven of the hundred patients had cancer of the stomach. All of the low counts were due to pernicious anemia, simple achlorhydric anemia or cancer.

The possibility that the achlorhydria associated with anemia may be due to the anemia has been considered. It has been shown, however, that in pernicious anemia the achlorhydria precedes, often by many years, the

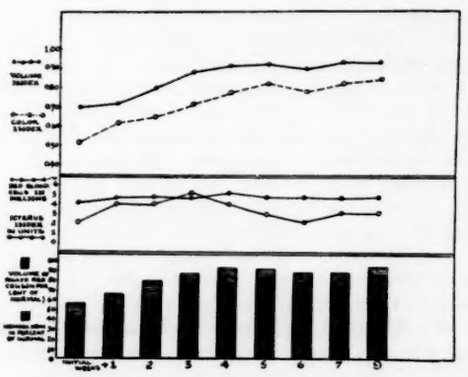

Chart 5.—Weekly blood study in a single case of simple achlorhydric anemia in which the patient was treated adequately with iron. Note the gradual increase in mean cell value and total cell mass without a change in the red cell count or the icterus index.

changes in the blood and does not disappear with clinical improvement. In simple achlorhydric anemia, also, the absence of free acid seems permanent. Achlorhydria in pernicious anemia is now considered only as an indicator of the lack of some substance derived from the stomach and necessary for normal blood formation. In simple achlorhydric anemia the achlorhydria may be a factor in the production of the anemia in a number of ways. There is usually bacterial overgrowth in the upper intestinal tract in the absence of free hydrochloric acid, and digestion does not proceed normally with achlorhydria. It is possible that products toxic for bone marrow may develop in the same manner as was formerly thought to occur in pernicious anemia, but this is unlikely. Mettier and Minot [9] have shown that iron is absorbed from the gastro-intestinal tract much more readily when administered with acid than with alkaline meals; so the condition may be one of iron starvation due to poor absorption, and many of the patients have been on an iron deficient diet because of digestive symptoms. The erythroblastic

25. Borgbjœrg, A., and Lottrup, M. C.: Blutuntersuchungen bei der Achylie speziell mit Rückblick auf die perniziöse Anämie, Acta med. Scandinav. **72**: 536-560, 1929.

26. Davies, D. T., and James, T. G. I.: An Investigation into the Gastric Secretion of 100 Normal Persons Over the Age of 60, Quart. J. Med. **23**: 1-14 (Oct.) 1930.

27. Morley, J., and Roberts, W. M.: Technique and Results of Partial Gastrectomy for Chronic Gastric Ulcer, Brit. J. Surg. **16**: 239-1252 (Oct.) 1928.

28. Ivy, A. C.; Morgan, J. E., and Farrell, J. I.: The Effects of Total Gastrectomy: Experimental Achylia Gastrica in Dogs with the Occurrence of Spontaneous Anæmia and Anæmia of Pregnancy, Surg., Gynec. & Obst. **53**: 611-620 (Nov.) 1931.

marrow which returns to normal with adequate treatment strongly suggests that this is a deficiency disease just as pernicious anemia is a deficiency disease.

The relation of simple achlorhydric anemia to pernicious anemia has been discussed by Witts,[4] Hurst [12] and Davies.[29]

TABLE 6.—*Results of Treatment in Twenty Cases of Achlorhydric Anemia*

Case	Interval	Red Blood Count in Millions	Packed Cells in per Cent of Normal	Hemoglobin in per Cent of Normal	Volume Index	Color Index	Saturation Index	White Blood Count	Icterus Index
1	0	3.12	50	50	0.81	0.81	1.00	.....	..
	10 wk.	5.04	100	83	0.99	0.82	0.83	.....	..
2	0	2.04	42	30	1.02	0.75	0.73	.....	..
	4 mo.	4.61	78	65	0.85	0.71	0.83	.....	..
3	0	3.05	56	50	0.92	0.82	0.90	6,500	..
	10 wk.	4.96	94	81	0.95	0.82	0.86	6,700	..
6	0	4.03	57	42	0.70	0.52	0.74	5,700	2
	6 wk.	4.85	91	81	0.93	0.83	0.89	6,450	3
7	0	4.00	60	53	0.75	0.66	0.88	6,600	..
	1 yr.	4.72	92	90	0.98	0.96	0.98	.....	..
8	0	3.39	73	53	1.07	0.79	0.72	.....	..
	8 wk.	4.70	90	87	0.95	0.92	0.96	.....	..
10	0	3.00	50	32	0.83	0.53	0.64	4,000	..
	9 mo.	5.13	90	80	0.88	0.78	0.89	.....	..
16	0	4.56	69	52	0.75	0.57	0.75	6,350	6
	4 mo.	4.46	89	84	1.00	0.94	0.94	8,050	4
17	0	4.21	70	55	0.83	0.65	0.78	5,500	5
	1 mo.	4.85	84	71	0.86	0.73	0.84	5,300	4
18	0	5.02	66	49	0.66	0.49	0.70	6,700	..
	6 wk.	5.87	104	91	0.88	0.77	0.87	6,000	4
19	0	4.16	66	52	0.79	0.62	0.79	7,300	4
	9 wk.	4.29	80	71	0.93	0.82	0.88	7,150	2
20	0	3.92	62	48	0.79	0.61	0.77	2,900	4
	3½ mo.	4.01	82	71	1.02	0.88	0.86	4,950	2
21	0	4.58	60	42	0.65	0.46	0.70	4,150	5
	3½ mo.	4.78	93	84	0.96	0.87	0.90	4,200	4
22	0	4.50	66	57	0.73	0.63	0.86	8,200	4
	4½ mo.	4.64	89	84	0.95	0.91	0.94	9,450	..
23	0	5.17	69	55	0.67	0.53	0.80	5,150	5
	4½ mo.	5.21	93	84	0.89	0.81	0.90	4,100	3
24	0	4.77	66	52	0.69	0.54	0.79	5,500	5
	4 wk.	5.30	89	75	0.84	0.71	0.84	5,000	3
25	0	4.59	78	61	0.84	0.66	0.80	6,150	3
	4 wk.	4.86	93	81	0.95	0.83	0.87	6,200	5
27	0	4.55	69	60	0.76	0.66	0.87	10,000	2
	6 mo.	4.37	84	78	0.96	0.89	0.93	8,600	5
30	0	3.52	..	39	....	0.56	....	.....	..
	4 wk.	4.54	84	78	0.92	0.86	0.92	5,950	4
32	0	4.76	66	45	0.69	0.47	0.68	5,400	2
	4 wk.	5.25	95	81	0.90	0.77	0.85	5,900	2
Mean	Before treatment	4.00	63	49	0.79	0.61	0.79		
	After treatment	4.79	89	80	0.93	0.83	0.90		

Cases are reported in which the simple type of anemia seems to have changed into the pernicious type and others in which there are features of both diseases.[4] Witts is inclined to consider the two diseases as manifestations of a common defect. It seems to me that the two diseases are entirely different.

It seems most probable that simple achlorhydric anemia belongs among deficiency diseases, and since the response to iron is so characteristic, simple iron deficiency is suggested as the cause. Some patients suffering from the disease have had for a long time a diet deficient in iron; in others there must be some difficulty in iron assimilation or absorption, so that the amount of iron taken with a normal diet is not sufficient for the needs of the body. It is also possible that the utilization of iron in the animal body is dependent on some element in the gastric secretion other than that related to the malnutrition of megaloblasts. According to this conception, the achlorhydria has no direct relation to the anemia and is only an indicator of the missing principle, just as it is in pernicious anemia. It is improbable that the achlorhydria alone is responsible for the disease, an idea advocated by Hurst.[12]

29. Davies (footnotes 13 and 15).

TREATMENT

The treatment of simple achlorhydric anemia, fortunately, is most satisfactory since it responds almost specifically to iron therapy. One should question the diagnosis if the patient does not respond to the proper administration of iron, just as the diagnosis of pernicious anemia is questioned in the absence of the characteristic response to the administration of liver. The value of iron is emphasized by all, although Mills [5] expressed the belief that better results are obtained by the addition of copper. It is possible that some of the beneficial results attributed to iron alone are due to copper occurring as a contamination in the medicinal iron preparations. I have been able to follow the results of treatment in twenty patients (table 6). The reticulocytes rapidly begin to rise after beginning the administration of iron, as shown in chart 3, although the rise is much less spectacular than in pernicious anemia with liver therapy. With relatively little change in the erythrocyte count, unless this is low, there is a rapid rise in the cell volume and hemoglobin so the volume index and color index rapidly rise to normal. The results of therapy are illustrated in a selected group of cases in chart 4 and table 6. Frequent determinations in three patients to show the rate of return to normal and the effect of continued treatment are shown in table 7 and chart 5. The cell diameter returns to normal also (table 5). Liver and liver extract had been tried by many of our patients without any beneficial result, and all other observers have reported a similar lack of response to liver. McCann and Dye [11] found no response to treatment with a liver fraction supposedly potent for secondary anemia. The disease always recurs unless the iron is taken continuously, just as pernicious anemia recurs without the

TABLE 7.—*Consecutive Blood Examinations in Four Cases with Adequate Iron Therapy*

Case	Interval	Red Blood Count in Millions	Packed Cells in per Cent of Normal	Hemoglobin in per Cent of Normal	Volume Index	Color Index	Saturation Index	White Blood Count	Icterus Index
18	0 wk.	5.02	66	49	0.66	0.49	0.70	6,700	1
	1 wk.	5.95	89	61	0.74	0.52	0.67	8,000	..
	2 wk.	5.80	91	71	0.78	0.61	0.78	6,150	1
	3 wk.	6.16	100	78	0.81	0.63	0.78	5,250	..
	4 wk.	5.63	100	78	0.88	0.69	0.78	5,000	..
	5 wk.	5.66	104	84	0.92	0.74	0.80	5,100	..
	6 wk.	6.00	109	91	0.91	0.76	0.83	5,900	..
	2½ mo.	5.79	106	91	0.91	0.78	0.85	7,000	2
	4 mo.	5.27	97	91	0.92	0.86	0.93	5,000	2
	12 mo.	5.34	100	91	0.93	0.85	0.91	5,600	3
6	0 wk.	4.03	57	42	0.70	0.52	0.74	5,700	2
	1 wk.	4.48	67	55	0.75	0.62	0.82	4,950	4
	2 wk.	4.72	80	61	0.85	0.65	0.76	5,000	4
	3 wk.	4.97	87	71	0.88	0.72	0.81	5,350	5
	4 wk.	5.07	93	78	0.92	0.77	0.84	4,150	4
	5 wk.	4.85	91	81	0.93	0.83	0.89	6,450	3
	6 wk.	4.98	89	78	0.90	0.78	0.88	6,400	2
	7 wk.	4.71	89	78	0.94	0.83	0.87	5,700	3
	9 wk.	4.95	93	84	....	....	....	6,000	3
32	0 wk.	4.76	66	45	0.69	0.47	0.68	5,400	2
	1 wk.	4.71	71	52	0.75	0.55	0.73	4,750	3
	2 wk.	4.99	84	65	0.84	0.65	0.77	5,500	4
	3 wk.	5.40	95	74	0.88	0.68	0.78	6,900	4
	4 wk.	5.25	95	81	0.90	0.77	0.85	5,900	2
22	0 wk.	4.50	66	57	0.73	0.63	0.86	8,200	4
	1½ mo.	4.79	88	78	0.92	0.81	0.78	8,300	..
	2½ mo.	4.71	89	81	0.95	0.85	0.91	8,800	2
	3½ mo.	4.55	84	81	0.92	0.89	0.96	9,400	3
	4½ mo.	4.64	89	84	0.95	0.91	0.94	9,450	..
	6½ mo.	4.53	88	84	0.96	0.92	0.95	8,650	4
	8½ mo.	4.47	91	84	1.02	0.93	0.92	10,250	2
	10½ mo.	4.33	89	81	1.02	0.93	0.91	8,500	3

constant use of liver or liver substitutes. Twenty grains (1.3 Gm.) of ferrous carbonate has been given three times a day until the blood returns to normal, and then has been given in amounts of 10 grains (0.65 Gm.) three times a day as a maintenance dose. I have seen no need for copper, although it is possible that the iron we have used contains copper. Earlier in the study I was convinced that iodine given as tincture of iodine was a valuable aid in treatment, and I still think that iodine is a valuable adjuvant if only small doses of iron are given. Such good results are obtained by large doses of iron alone, however, that this is the treatment of choice. All observers seem to agree that there is no necessity for giving hydrochloric acid in the absence of digestive symptoms such as diarrhea. After the anemia is relieved the maintenance dose of iron should be determined for each patient.

SUMMARY

1. Simple achlorhydric anemia is a clinical entity as definite as pernicious anemia, but probably with no relation to it. It is a common disease occurring more frequently than pernicious anemia, and is a frequent source of chronic invalidism in women between the ages of 30 and 50 years.

2. If untreated, the disease is chronic, but is seldom, if ever, fatal and does not show spontaneous remissions.

3. Clinically, it is characterized by symptoms referable to the anemia—palpitation, fatigue and weakness, digestive difficulties and menstrual disturbances.

4. The gastric analysis always shows an achlorhydria with the simple test meals, although free acid may be found after the administration of histamine. Gastric ferments are usually present but in diminished amounts.

5. The blood shows typically a microcytosis and hypochromia of the red cells without marked diminution in the number of erythrocytes. Hence the volume and color indexes are usually low. The stained film shows pallor and anisocytosis of the erythrocytes and often banana-shaped erythrocytes. The leukocytes show nothing extraordinary, although there usually is a slight leukopenia. The bile pigments in the plasma are never above normal and are usually below normal.

6. Studies of the bone marrow show a normoblastic marrow during the active stages of the disease with a return to normal during treatment.

7. The disease responds quickly and characteristically to treatment with large doses of iron, but recurs unless iron is given continuously.

8. The bone marrow findings, the characteristic response to iron therapy, the achlorhydria and certain of the clinical symptoms suggest as the fundamental cause of the disease some deficiency either in the intake or in the utilization of iron.

ABSTRACT OF DISCUSSION

DR. A. C. IVY, Chicago: Dr. Haden's paper interested me very much, because during the last eight years my associates and I have been studying the effects of total gastrectomy, or experimental achlorhydria, in dogs. A secondary anemia occurs only occasionally in male dogs, but in female gastrectomized dogs a secondary anemia occurs with each pregnancy. The degree of the anemia varies from a grave secondary anemia, in which the animals are so weak that they cannot stand, to an anemia mild in type. During the last year we have been following the changes in circulating blood volume in these animals. In the gastrectomized females we find that the total circulating blood volume is less than normal. When they become pregnant, the plasma volume goes up toward the normal, but the corpuscular volume lags behind, apparently indicating that there is some disturbance under the conditions imposed by the physiologic strain of pregnancy that does not make it possible for red cells to meet the changing condition. The color index in our animals has been nearly always less than 1. We have here in the dogs a condition simulating the condition reported by Dr. Haden, I believe, in some respects at least. Dr. Jung in my laboratory has recently been able to gastrectomize rats. This means that within a short time we shall be able to study iron metabolism in a rather large group of achlorhydric animals, studies in iron metabolism being much more easily performed on rats than on dogs.

DR. H. M. CONNER, Rochester, Minn.: I should like to call attention to the possible relationship to pernicious anemia of some cases that have all the blood features of this disease. I have at the present time two patients who have achlorhydria, who have a low volume index, comparatively small cells, low hemoglobin index and achlorhydria after histamine, and who came from pernicious anemia families. The mother of one died from pernicious anemia, and a sister has it. In the other instance the mother died of pernicious anemia. They have no macrocytosis and none of the other blood evidences of pernicious anemia. It is possible that sooner or later this type of patient may develop pernicious anemia. I have seen several instances of patients who have shown this type of blood picture, who have not had a relationship to patients with pernicious anemia, who later have developed the typical blood changes and typical course of pernicious anemia. I should like to call attention, too, to one patient whom I first saw three or four years ago, who apparently has this type of disease. At the time she first appeared at the clinic she had over 60 degrees of free hydrochloric acid. At that time she had only a slight anemia. At her next appearance, about two years later, she had a complete achlorhydria and has continued to have a complete achlorhydria with histamine since that time. This is the only instance in my own experience of disappearance of acid right under my eyes. Sometime ago I reported a case of anemia, with a low hemoglobin index, with none of the evidences of pernicious anemia, that had followed a complete gastrectomy. This patient had about 25 per cent hemoglobin, and there was no macrocytosis and none of the evidences of pernicious anemia. At that time I was greatly interested in the feeding of stomach to patients with pernicious anemia, so I determined to try the use of stomach on this patient. Unfortunately, I spoiled my experiment by adding to the stomach feeding small doses of iron at a later date. However, with the iron and with the feeding of stomach, the patient rapidly built up his blood. At the present time his blood is normal, but he continues to use iron and gastric feeding.

DR. RUSSELL L. HADEN, Cleveland: I have been much interested in Dr. Ivy's work on the development of anemia after gastrectomy. I have not seen any relation of the anemia to pregnancy such as he observed in his experimental animals. Dr. Conner has discussed the possible relation of simple achlorhydric anemia to pernicious anemia. I still feel strongly that the two diseases are distinct clinical and etiologic entities. Recently I made a diagnosis of simple achlorhydric anemia in a patient with the typical clinical picture of this disease who had, however, a high icteric index. The patient did not respond to iron therapy and continued to have a high icteric index. She has gradually developed a macrocytosis of the red cells. I think this patient had pernicious anemia from the onset and so did not change from one type of anemia to another. After gastrectomy there might well be a most confusing picture, since there might be an anemia combining features both of pernicious and of simple achlorhydric anemia. Dr. Heck discussed the possibility of the development of this type of anemia without an entire absence of free hydrochloric acid in the gastric secretion. I think this is possible just as pernicious anemia may occasionally develop in this manner. I have not included in my series, however, any patients showing an achlorhydria. I see no reason why there should be so few cases of simple achlorhydric anemia reported in the medical literature. It is certainly a common disease and must be often overlooked. These patients do not respond to liver extract therapy. Practically every patient I see has had a long course of treatment with liver extract at great expense with no improvement. Other observers have had similar experiences.

THE ISOLATION OF SPIROCHAETA PALLIDA FROM THE LESION OF GASTRIC SYPHILIS

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Although the association of syphilis and certain rare cases of gastric disease has been so clearly recognized that criteria for the diagnosis of gastric syphilis have been advanced,[1] convincing scientific proof is wanting that these gastric lesions are due to the presence of Spirochaeta pallida. Both clinical and histologic diagnoses of gastric syphilis have been made on the knowledge of coexisting syphilis and the exclusion of other known causes of gastric lesions.

In 1922, McNee[2] observed spirochetes in one of eight blocks of tissue obtained from a gastric lesion at

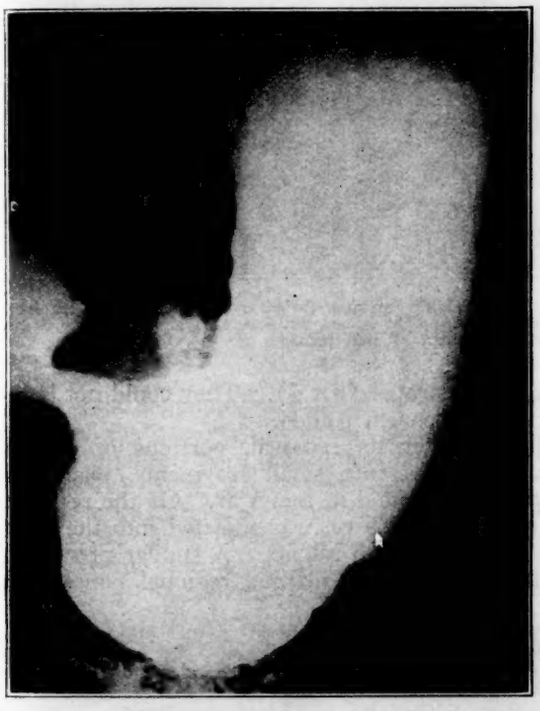

Fig. 1.—Annular defect involving pylorus and distal third of stomach.

autopsy. While he considered that these organisms had the typical appearance of Spirochaeta pallida, doubt still remains as to their identity. Singer and Dyas,[3] in 1928, made a careful survey of the literature, including McNee's report, and concluded that the presence of Spirochaeta pallida in lesions diagnosed gastric syphilis had never been conclusively demonstrated. In the reported cases the histologic changes described are, essentially, areas of perivascular round cell infiltration and obliterative endarteritis. While constant, this type of tissue reaction is by no means specific for syphilitic infection. There exists, then, no firm etiologic basis for the diagnosis of gastric syphilis. In order to establish the condition as an entity of specific etiology, the inciting agent must be shown to be present in the lesion. If, from a lesion in which spirochetes are demonstrable by staining methods, Spirochaeta pallida could be isolated and accurately identified, it would seem that this final requirement for the proof of the syphilitic nature of the lesion would be met. In the study of the following case, this has been accomplished:

Fig. 2.—Gastric lesion: shallow ulceration of gastric mucosa. Leukocytic infiltration of mucosa and muscularis. Reduced from a photomicrograph with a magnification of 23 diameters.

A Negro plasterer, aged 50, presented himself at the Vanderbilt University Hospital, complaining of vomiting and a sense of epigastric fulness. His past history was negative except for the fact that he had had a penile ulcer when a young man. For two months prior to his admission to the hospital he had vomited frequently after eating. Dark blood had been noted in the stools. He had lost weight steadily. On physical examination there was evidence of recent loss of weight. A general glandular enlargement was present. A small, firm, movable, slightly tender mass was present in the epigastrium. Roentgen examination after a barium meal revealed an annular defect involving the distal third of the stomach and resulting in partial pyloric obstruction (fig. 1). A slight anemia was present. The Wassermann reaction of the serum and the Kahn test were positive. The patient refused treatment and was discharged from the hospital. Six weeks later he returned with evidence of complete pyloric obstruction. Laparotomy was performed by Dr. Barney Brooks. The preoperative diagnosis was carcinoma of the stomach. At operation the entire pyloric

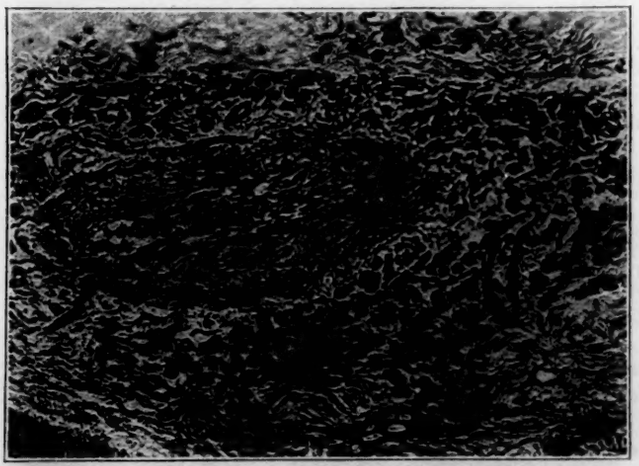

Fig. 3.—Gastric lesion: obliterative endarteritis and perivascular round cell infiltration. Reduced from a photomicrograph with a magnification of 210 diameters.

From the Department of Medicine, Vanderbilt University School of Medicine.

Read before the Association of American Physicians, Atlantic City, N. J., May 3, 1932.

1. Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1928. Harris, Seale, Jr., and Youmans, J. B.: South. M. J. **24**: 847 (Oct.) 1931.
2. McNee, J. W.: Quart. J. Med. **15**: 215 (April) 1922.
3. Singer, H. A., and Dyas, F. G.: Syphilis of the Stomach, Arch. Int. Med. **42**: 718 (Nov.) 1928.

end of the stomach was seen to be involved in what appeared to be an inflammatory mass, hyperemic and edematous. Large edematous lymph nodes were present along the greater curvature. The lower third of the stomach, including a portion of the duodenum, was excised and an anastomosis was made. The patient experienced an uneventful recovery.

Fig. 4.—Gastric lesion: stained by the Levaditi method. Arrows indicate spiral forms. Slightly reduced from a photomicrograph with a magnification of 850 diameters.

Fig. 5.—Syphilitic orchitis; early scrotal chancre (rabbit): seventh week after inoculation of right testicle with saline emulsion of tissue from gastric lesion.

At the time of operation the gross character of the gastric lesion strongly suggested inflammatory rather than neoplastic disease, and a tentative diagnosis of syphilis of the stomach was made by the surgeon. Microscopic examination subsequently revealed infiltration of the mucosa and muscularis with leukocytes (fig. 2), marked perivascular round cell infiltration (fig. 3) and thickening of the arterial walls. Several shallow ulcers with necrotic bases were present (fig. 2). In sections stained by the Levaditi method, spiral forms were demonstrated (fig. 4). They could not be identified as Spirochaeta pallida.

Fig. 6.—Syphilitic orchitis (rabbit): Seventh week after inoculation of right testicle with saline emulsion of lymph node situated on the greater curvature of the stomach.

Shortly after its removal, portions of the gastric lesion were cut into small fragments, placed in salt solution and ground in a mortar. Of the resulting tissue suspension, 0.5 cc. was injected into the right testicle of each of two rabbits. A similar procedure was carried out with an enlarged regional lymph gland, a second pair of rabbits being inoculated. The two pairs of animals were observed at frequent intervals. On the thirty-seventh day after the inoculation, one animal of each pair showed induration of the inoculated testicle, with beginning nodular formation. By the forty-eighth day these rabbits had developed well marked testicular syphilomas, one with an associated chancre of the scrotum (figs. 5 and 6).

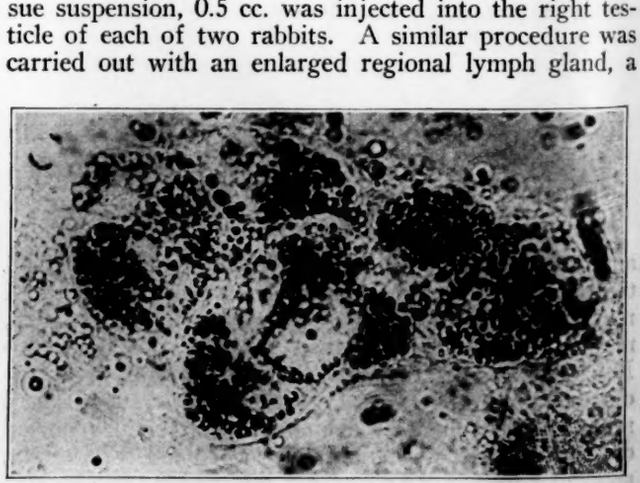

Fig. 7.—Syphilitic orchitis (rabbit): group of large phagocytic mononuclear cells. Supravital stain. Reduced from a photomicrograph with a magnification of 1,000 diameters.

The animals were killed. The affected testes were removed and examined. The gross appearance of the lesions was typical of syphilis in the rabbit. Dark-field examination of scrapings from the lesions revealed Spirochaeta pallida in countless numbers and typical in form. When scrapings from the lesions were stained by the supravital method it was possible to demonstrate large numbers of the large phagocytic mononuclear cells previously described as characterizing early lesions of experimental syphilis (fig. 7).[4] Fixed tissues stained by the Levaditi method revealed the typical Spirochaeta pallida. The two strains of Spirochaeta pallida thus recovered (one from the gastric lesion proper and the other from a regional lymph node), have been transferred repeatedly in rabbits. They produce the characteristic local and metastatic lesions of experimental syphilis.

SUMMARY

Spirochaeta pallida has been recovered from the gastric lesion and from a regional lymph node in a case of gastric syphilis.

This observation constitutes conclusive proof of the etiologic rôle of Spirochaeta pallida in the production of such lesions.

LYMPHOPATHIA VENEREUM

(LYMPHOGRANULOMATOSIS INGUINALIS OF NICOLAS, FAVRE AND DURAND)

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In a recent communication by Wolf and Sulzberger,[1] the use of the name lymphopathia venereum was suggested to replace the original name lymphogranulomatosis inguinalis.[2] This was done not only because the older name unfortunately bears confusing resemblance to names of other diseases but because it does not embrace many extra-inguinal localizations now recognized as being of identical etiology.

A short description of this condition, with emphasis on differential diagnosis and particularly on its sequelae, seems indicated, for it is likely that many cases are passing unrecognized, mainly because of the paucity of information available in the American literature.[3] Another cause of failure to make this diagnosis is that recognition of the sequelae of lymphopathia venereum in women is rendered all the more difficult for the uninitiated by the fact that they bear no resemblance to the original clinical picture described and are usually not preceded by manifest, specific alterations.[4]

The recent (unpublished) studies of H. N. Cole and others and our own observations indicate that, geographically, the disease is fairly widely disseminated in the United States. Whereas there can be no exact statistics available, we know of a sufficient number of cases to warrant our assumption that the disease is not as rare as is commonly supposed.

The name suggested by Wolf and Sulzberger (lymphopathia venereum) indicates that the infection is venereal and that the disease is one affecting primarily the lymphatic tissues. The course and clinical manifestations of the process are different in the male and female and will be taken up separately.

CLINICAL MANIFESTATIONS

Because of its hidden development in women, the disease, which has been recognized in Europe for over sixty years, was supposed to affect almost exclusively adult males. There is usually a small initial lesion on the penis, which appears from six to thirty days after intercourse. The primary lesion is usually very small, is not painful, and frequently lasts for only a short time (ten days), so that it is often unnoticed by the patient and comes only rarely within the observation of the physician. It generally consists of a small, often not over the size of a pinhead, nonindurated, nonsuppurative and nontender erosion with sharply defined edges. This is frequently situated on the glans or the prepuce. An important type of primary lesion is the herpetic form, which consists of one or two herpes simplex-like vesicles which cause little inflammation and no marked discomfort. The patients often exhibit general symptoms, such as elevation of temperature, headaches and malaise. In a few exceptional cases skin eruptions, of both the erythema nodosum and the erythema multiforme type have been reported, and in some cases also enlargement of the spleen.

The inguinal lymph glands present a characteristic picture and are involved early in the process, usually one or two weeks after the appearance of the initial lesion and about three weeks after infection. They become swollen and slightly tender. The swelling increases, and the skin over the glands becomes reddened and very soon also attached to the underlying tumefied glands. The color of the skin becomes violaceous; the glands beneath are caked together in large, hard, indolent masses, and areas of softening develop (fig. 1). The bluish, violaceous and adherent skin begins to fluctuate, and one or many fistulas appear. Sometimes the entire affected area becomes honeycombed with multiple openings, from which at first creamy yellow and later serosanguineous pus exudes.

The process has by this time followed the lymph channels into the depths, so that the enlarged iliac glands may be palpated. At times, one is even able to feel the lymph strands leading as swollen bands from the superficial inguinal to the deeper iliac glands.

In many cases, apparently at approximately this time, the perirectal lymphatics become involved.

Extragenital infections are extremely rare; in these, the regional lymphatics (axillary and the like) undergo the changes usually observed in the inguinal glands.

The further course of the disease is chronic, and after many months or years distinctly fibrotic and retracted scars lead to healing.

The many sequelae, often appearing years later, are the direct result of the localization of the process and the firm retractile scarring. In men the lymph flow from the penis and scrotum may be impeded, in which case elephantiasis of these parts may follow.[5] When the fibrotic scarring of the perirectal lymphatics is extensive, rectal strictures are the inevitable consequences. These are present in a high percentage of cases of lymphopathia venereum in men.

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4. Morgan, H. J.: Tr. A. Am. Physicians **45**: 67, 1930.

1. Wolf and Sulzberger: Lymphopathia Venereum, Brit. J. Dermat. **44**: 192 (April) 1932.

2. Nicolas, Favre and Durand: Lymphogranulomatose inguinale subaigue, Bull. et mém. Soc. méd. d. hôp. de Paris **35**: 274 (Jan. 31) 1913.

3. Pardo-Castello, V.: Lymphogranulomatosis Inguinalis, Arch. Dermat. & Syph. **14**: 35 (July) 1926. Hillsman, J. A.; Wilshusen, H. F., and Zimmerman, H. M.: Lymphogranulomatosis Inguinalis, Arch. Dermat. & Syph. **18**: 383 (Sept.) 1928.

4. Frei, Wilhelm: Weitere Beiträge zur Kenntniss der Lymphogranulomatosis inguinalis und des Ulcus chronicum elephantiasticum Vulvae et Ani, Klin. Wchnschr. **44**: 2038 (Oct. 29) 1929.

5. Barthels, C., and Biberstein, H.: Elephantiasis penis et scroti und Lymphogranulomatosis inguinalis, Beitr. z. klin. Chir. **152**: 325, 1931.

In women, for reasons we shall discuss later, they are probably the most important manifestations of the disease or at least its most constant and sometimes sole clinical manifestation. It is natural to assume that severe scarring should be more frequent and severe in Negroes with their well known tendency to keloid formation, and Adler [6] reports that he has found rectal strictures of the type described in many Negresses.

As soon as the now generally accepted venereal nature of this infection was recognized, the discrepancy between the numbers of males and females affected became a matter requiring explanation. This explanation has been given by the discovery that in women lymphopathia venereum runs a different course. For this reason its common manifestations in the female were not recognized as belonging to the same disease

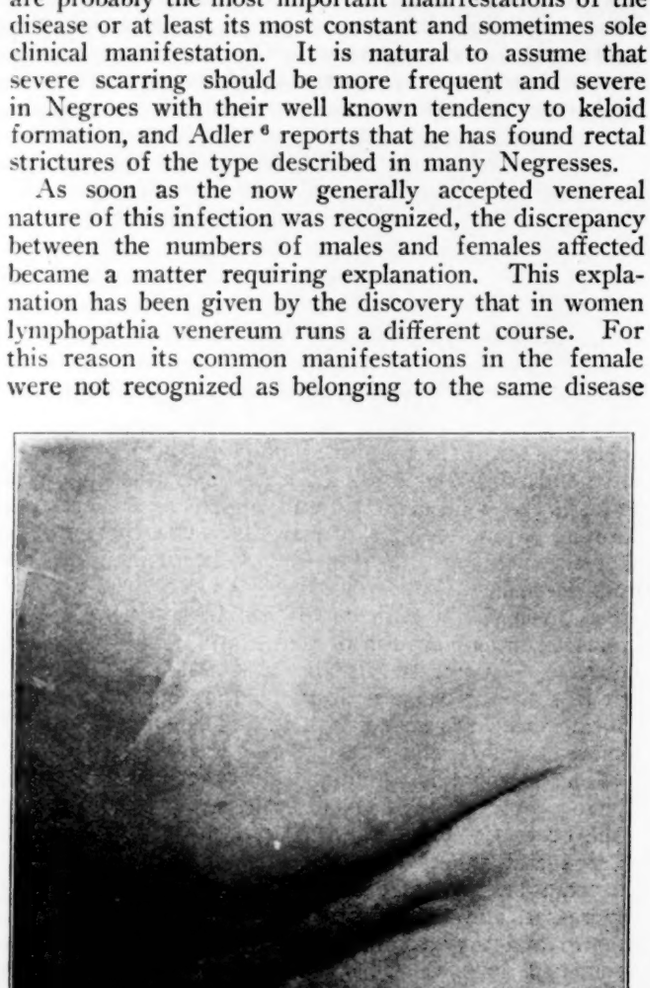

Fig. 1.—Lymphopathia venereum in healing. The retractile scarring and adhesion of skin to the inguinal glands may be noted.

until the discovery of a specific test by Frei [7] proved the identity. This test has proved the open sesame in all subsequent investigations and will be described later.

Because of the different sites of entry of infection and the different anatomic conditions in the female, the clinical picture is changed.

Even in the male, in whom the primary lesion is clearly visible and external, it is so insignificant that it frequently passes unnoticed. It is obvious that a lesion of this kind, appearing in the internal genitals of the female, would defy detection. The investigations of Barthels and Biberstein [8] show that in the majority of lymphopathia venereum infections in females the portal of entry was probably either the cervix or the posterior fornix. This is what was to be expected in analogy with syphilis and other diseases acquired by similar contact. The rare cases of lymphopathia venereum in females which were reported before the use of the Frei test were probably such in which the infection took place in an unusual localization, such as the labia, or the clitoris or other anterior portion of the genital regions, and drainage occurred to the inguinal lymphatics. Not only is the primary lesion in women hidden, as a rule, but its localization causes a radical deviation from the clinical picture in males.

RECTAL STRICTURES

In women, therefore, it is the exception for inguinal adenopathy to become manifest. The lymph drainage from the cervix, which carries the virus, penetrates to the deeper glands and lymph vessels, and the deeper pelvic lymphatics and the perirectal tissues are those next affected. As there are no severe subjective symptoms and no visible lesions due either to the primary lesions or to the lymphatic involvement, the entire course of the active phases of the disease frequently escapes notice. The infection does not cause any manifestations until the retractile scarring has brought about the sequelae. These often first appear years later. In addition to ulcus chronicum elephantiasticum vulvae et ani (esthiomene), which is a type of ulceration and elephantiasis of the vulva and perianal region probably due to lymph stasis and malnutrition, the process known as "syphiloma anorectale" and many high rectal strictures in women which were formerly thought due to gonorrhea, syphilis and other granulomas (tuberculosis and the like) have been proved to be due to lymphopathia venereum infection.

While we must refer to the textbooks and original articles [9] for detailed discussion of these conditions, because of its frequency and importance we will mention briefly some further points concerning the rectal strictures. The position of the strictures following lymphopathia venereum is usually high in the rectum. They are generally just to be reached by the end phalanx of the palpating finger. (In both men and women this high localization is manifest.)

The point to be emphasized is that such strictures occurring in women without other demonstrable cause must always be investigated in the direction of lymphopathia venereum. They may be the only manifestation of a previous infection with the virus of lymphopathia venereum and appear in women without being preceded by inguinal adenopathy.

The same holds true of certain elephantiasic changes and chronic inflammatory ulcerative and granulomatous conditions of the vulva, rectum and anus. That such is the case has been proved by epidemiologic observations, in addition to other evidence which will be mentioned later. The rectal strictures and other described conditions occur in women whose husbands or partners on examination frequently show signs of the scarring due to the typical male inguinal adenopathy.

THE FREI TEST

The main reason for grouping these apparently divergent clinical pictures in the female with one another and with the typical male adenopathy as being manifestations of one and the same disease is that all

6. Adler, S. H.: Personal communication to the authors.
7. Frei, Wilhelm: Eine neue Hautreaktion bei Lymphogranuloma inguinale, Klin. Wchnschr. **4**: 2148 (Nov. 5) 1925.
8. Barthels, C., and Biberstein, H.: Zur Aetiologie der entzuendlichen Rektumstrikturen, Beitr. z. klin. Chir. **152**: 161, 1931.
9. Frei, Wilhelm, and Koppel, Alice: Ulcus vulvae chronicum elephantiasticum (esthiomène) und sogenanntes Syphilôme anorectal als Folgeerscheinungen der Lymphogranulomatosis inguinalis, Klin. Wchnschr. **7**: 2331 (Dec. 2) 1928.

these conditions and only these give positive reactions to intradermal testing with the Frei vaccine.

As we have mentioned, the discovery of this test by Frei [8] in 1925 opened the field for renewed successful research and has been heralded the modern advance of knowledge in this group of diseases. The technic of the test is simple and the material easily obtained, provided one has active male cases of lymphopathia venereum at one's disposal.

Pus is obtained by sterile puncture of an unopened, fluctuating bubo. This is diluted with from 5 to 10 parts of physiologic solution of sodium chloride and sterilized at 60 C. for one hour on the first day and two hours on the following day. The tests for sterility are made on standard mediums, and the vaccine is then ready for use. It is proved to be efficacious by testing on known cases of lymphopathia venereum.

The test is performed by the intradermal injection of approximately 0.1 cc. Injection is performed with a fine cannula and tuberculin syringe as superficially as possible in order to produce good whealing. The reaction reaches its maximum after from forty-eight to seventy-two hours and consists of erythema, infiltration and often pustulation of the central area (fig. 2). While the reaction may vary in severity, it is absolutely specific. We have tested many normal individuals as well as patients with chancroidal buboes and other types of involvement of the inguinal lymph glands without witnessing a single false positive. However, not all cases of lymphopathia venereum give positive Frei tests. It is true that an overwhelming majority of these cases are positive to the test, but in view of the rare negative cases, cross-testing should be employed. That is, the case being investigated should first be Frei-tested as described. If negative, material from this case (pus, or if this is not obtainable, excised glandular tissue triturated with saline solution and prepared in the same manner as the vaccine) should then be injected in a proved Frei-positive case.

A brief word is necessary concerning certain immunologic relationships between syphilis and lymphopathia venereum. Lymphopathia venereum and syphilis seem to influence each other as far as immunologic reaction is concerned in a manner not yet clearly understood. Cases have been reported in which the Wassermann reaction becomes positive for several weeks, as a result only of lymphopathia venereum infection and without any evidence of syphilis being demonstrable in spite of thorough and long-continued investigation. Another evidence of this puzzling reciprocal immunologic influence is the number of cases in which syphilitic infection and lymphopathia venereum are both present. In some of these, especially during the period of active syphilitic lesions, the Frei test is negative. After antisyphilitic treatment [9] (and disappearance of the active syphilitic lesions) a repetition of the Frei test may give a positive result. Although these phenomena are inexplicable at present, it is necessary to know and recognize them in order to avoid conclusions which may lead to errors in diagnosis.

Another cause for a negative Frei test in cases of lymphopathia venereum may possibly be found in the fact reported by Hermans.[10] There seems to be a second group of cases of lymphopathia venereum which probably constitutes a very small minority of all cases. This group, designated as group two by the observer, does not react to vaccines prepared from group one, although in every other way it is identical with the first group in its manifestations. A vaccine prepared from group two gives positive reactions, not only in group two but in group one as well. This observation requires further investigation and study.

10. Hermans, E. H.: Lymphogranuloma inguinale, Arch. f. Schiffs- u. Tropen-Hyg. **33**: 214, 1929.

MICROSCOPIC CHARACTERISTICS

As the histologic picture is not typical or pathognomonic, we can afford to be very brief in its description. The glands are usually filled with numerous small abscesses containing polymorphonuclear leukocytes and round cells. There are often palisade-like arrangements of epithelioid cells at the periphery of the abscess. Perhaps the most characteristic feature of the picture is the starlike shape of the abscess. In addition to this, there are pyknotic nuclear fragments (corpuscles of Gamna). Occasional giant cells and even cells of the Sternberg type are encountered. The picture varies greatly from case to case, and it is impossible to make the diagnosis from the microscopic appearance alone.

CAUSATION

Until recently nothing was known concerning the etiology of the disease, but in 1930 Hellerström and Wassen [11] and later Meyer, Rosenfeld and Anders,[12] as well as Freund and Reiss [13] Levaditi, Ravaut, Lépine and Schoen [14] and others succeeded in transferring the condition to animals. Inoculations have been successful in monkeys, guinea-pigs and mice. In monkeys intracerebral inoculation of glandular material causes a meningitis with typical histologic manifestations, and in guinea-pigs inoculation in the inguinal area produces characteristic glandular changes. Through these experiments much has already been learned regarding the virus and much more may be expected from the pursuit of these investigations. The virus seems to be filtrable, passing through Berkefeld filters, although this is not yet definitely established. The results with the filtrates have been variable, and culture experiments have all been negative. Provided strongly virulent material was obtained, the Berkefeld filtrates have given positive inoculation experiments. Levaditi, Ravaut, Lépine and Schoen state that they have succeeded in twenty-two passages from monkey to monkey and that reinoculation to a human being has given a positive result. The virus is quickly destroyed at 60 C. but can be preserved for ten days at a temperature of about 3 C. After forty days it loses its infectiousness.

Fig. 2.—Cutaneous reaction to the intradermal injection of Frei vaccine seventy-two hours after injection.

11. Hellerström, S., and Wassen, E.: Compt. rend. Soc. de biol. **106**: 802 (March 20) 1931.

12. Meyer, Kurt, and Rosenfeld, Herbert: Erfolgreiche Uebertragung des Lymphogranuloma inguinale auf Meerschweinchen: I. Experimenteller Teil, Klin. Wchnschr. **10**: 1653 (Sept. 5) 1931. Anders, H. E.: II. Ueber Histogenese und Pathogenese des auf das Meerschweinchen uebertragenen Lymphogranuloma inguinale, p. 1655.

13. Freund, Helmut, and Reiss, Franklin: Uebertragung des Lymphogranuloma inguinale (Nicolas-Favresche Krankheit) auf Kanichen und Meerschweinchen, Klin. Wchnschr. **10**: 1658 (Sept. 5) 1931.

14. Levaditi, C.; Ravaut, P.; Lépine, P., and Schoen, Mlle. R.: Recherches expérimentales sur l'étiologie et la pathogénie de la maladie de Nicolas et Favre, Bull. Acad. de méd., Paris **106**: 331 (Nov. 17) 1931.

It does not resist glycerin or drying processes very well, but it is not easily destroyed by the usual antiseptics, with the exception of a diluted formaldehyde solution ("solution of formaldehyde U. S. P." 1:1,000).

TREATMENT

It is to be hoped that these new discoveries and these animal inoculations will lead to improvement in therapeutic measures. At present roentgen therapy of the glands or surgical extirpation of the deeper lymph structures and repeated puncture of the more superficial ones seem to offer the best results. Hermans,[10] Hellerström [15] and others report beneficial effects from vaccine treatment. We are in the position of most other observers in that the difficulty of obtaining sufficient vaccine has rendered it impossible for us to carry out this type of therapy. The disease, which is accompanied by such marked allergic manifestations, should theoretically react well to desensitization therapy, and it will perhaps be possible in the future to prepare vaccine for treatment from the tissues of infected animals. Unfortunately, the grave results of the scarring (rectal strictures, elephantiasis), once present, cannot be expected to respond to this treatment, which is directed only against the active processes.

DIAGNOSIS

It has been our object to outline, as briefly as possible, only the salient features of this condition. The reader desiring more details is referred to the monograph by Hellerström [16] and the article in Jadassohn's Handbuch by Fischl.[17]

It is probable that lymphopathia venereum in men is now being diagnosed under various names, such as climatic bubo, tropical bubo, strumous bubo and nonvenereal bubo. The clinical picture can hardly be confused with any other in typical cases. It should generally be easy to differentiate it from ulcus molle, for instance. In the latter condition, the marked swelling in the inguinal region, the extreme tenderness, the lack of true multiple fistulas exuding pus, the presence of the characteristic ulcers with their typical appearance, odor and bacteriologic manifestations, the positive autoinoculation and Reenstierna test and negative Frei test should be sufficient to establish the differential diagnosis.

The danger of confusion with granuloma inguinale or granuloma venereum is more apparent than real and is due to the similarity of names. Granuloma venereum is a progressive, ulcerative process of the genital and perianal regions, increasing slowly in extent and progressing with hyperplastic papillomatous granulation tissue and leaving marked scarring. The process begins in the skin and subcutaneous tissues, and the lymph glands and deeper tissues become affected only through extension of the skin process into the depths. In doubtful cases the negative Frei test and the demonstration of Donovan bodies should establish the diagnosis, and the therapeutic test with antimony and potassium tartrate should be of diagnostic value.

While it is probable that most cases of lymphopathia venereum in men are being recognized under different names, this is not true of the sequelae of this condition as observed in women. Through the courtesy of Dr. Sidney H. Adler of the Harlem Hospital, we have been able to test several cases of rectal stricture of unknown origin in Negro women with Frei antigen and have obtained positive results.

It is our main object in this paper to call attention to this fact and to point out that ulcerative and elephantiasic processes of the genitalia or anal region in women, and especially rectal strictures of unknown etiology, must be considered as the possible results of lymphopathia venereum infection and tested with the antigen of Frei.

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15. Hellerström, Sven: Strumöse Bubonen verschiedener Aetiologie, Acta dermat.-venereol. **12**: 254 (Aug.) 1931.
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17. Fischl, F.: Lymphogranulomatosis Inguinalis, in Jadassohn's Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer **21**, 1927.

THE TREATMENT OF GRANULOMA INGUINALE IN THE NEGRO

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One of us (H. H. H.) has been associated with the Freedmen's Hospital since 1910. During this period he has had the opportunity to study more than fifty cases of granuloma inguinale occurring in the Negro. In the early days, patients suffering from this disease were variously treated by attempts at excision with the knife or cautery, various chemical caustics, injections of various antiseptics, and all manner of local application, all with varying degrees of failure. In 1920, his interest in cutaneous infections with Leishman-Donovan bodies was stimulated by a private patient with leishmaniosis of the ear acquired in Indo-China. It is interesting to note that the organisms found in smears from this lesion were apparently identical with those found in cases of granuloma inguinale. However, the private patient was permanently cured by six injections of antimony and potassium tartrate (tartar emetic), while the six succeeding cases of granuloma inguinale were but little influenced by the same drug. Unfortunately, it was not noted that the antimony and potassium tartrate solutions were prepared by different firms. During the succeeding ten years the dispensary patients were referred to the x-ray department if the first three injections of antimony and potassium tartrate did not produce marked improvement, as was almost invariably the case. In the summer and fall of 1931, nine patients suffering from this disease applied for treatment at the dermatologic dispensary. This unusual number made it apparent that a more effective method of therapy must be devised and stimulated us to a review of the whole subject.

Since Howard Fox's report on 150 cases of granuloma inguinale in the United States (1926), there have been an increasing number of patients treated in the various clinics. Nine cases were treated in the Freedmen's Hospital Clinic, Washington, D. C., during the period of one year. There were 900 new dermatologic patients entered, making a percentage of 1. The predisposition of the Negro to the infection of granuloma inguinale has been demonstrated throughout the United States and has been no less backed by our experience in Washington.

From Freedmen's Hospital.

There have been reported occasional instances in the white race by Howard Fox,[1] Campbell,[2] Reed [3] and others. One of us (R. H. S.) has seen only one suspected case in a white female, which later proved to be an elephantiasis of the labia with a superimposed chancroid, probably falling into that group of patients discussed by Burch [4] and Magalhoes.[5] Another of us (H. H. H.) has seen one case in a white male.

In our series the condition was associated in the male with the genitocrural region and in the female with the labia minora primarily, involving secondarily the labia majora either by hyperplasia and destruction or by an intractable edema. In one patient there was a large denudation of the intertriginous, inguinal and pubic surfaces.

All cases in males and females were clinically and morphologically characteristic. The Donovan bodies were demonstrated in 66⅔ per cent of the cases. Cultures were unsuccessful. All patients had been given antisyphilitic therapy in large amounts. One patient, in addition, had been curetted and had been given radium treatment at one of the local dispensaries. Another had been treated with intravenous injections of antimony and potassium tartrate (ampules) one year prior to entering the clinic at Freedmen's. The duration of the disorder ranged from six months to five years.

Most important has been the therapeutic response to different types of treatment, namely, x-rays, antimony and potassium tartrate in the form of ampules and as a freshly prepared drug room solution, and more recently antimony thioglycollamide. The latter was called to our attention by the report of a case of Senear.[6] There are other references to its use in the literature by Patch and Blew [7] and others.

Of the nine recent cases, all were at first treated with commercial ampules of antimony and potassium tartrate. Because of indifferent results, the first three were referred for irradiation. These patients were treated with one-fourth unit dose of an unfiltered ray with a peak voltage of 100 at weekly intervals, and all were improved after four exposures and completely healed after nine exposures.

Another group of three patients was treated with a freshly prepared solution of antimony and potassium tartrate. All these patients after a few injections of a 1 per cent solution, beginning with 5 cc. and increasing by 1 cc. up to 10 cc. (when possible), gave signs of improvement subjectively and objectively. One objection to this management has been the untoward effect following injections, some patients experiencing malaise and nausea. A check up on the preparation and water failed to reveal any clue as to the cause.

Antimony thioglycollamide has been used in three patients, with no complaints following the injections, and with striking therapeutic response. In one instance a female patient with a large area of denudation suffered considerable pain and discomfort, especially when walking. She was given 20 cc. of a 0.4 per cent antimony thioglycollamide. Three days later the patient returned much gratified, saying that she had been decidedly better the day following the one injection. The cost of this preparation may render it unpractical for large dispensary use. Our hope is that some cheaper preparation might be suggested that is as efficient.

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4. Burch, J. C.: Granulomatous and Ulcerative Lesions of the Female Genitalia, South. M. J. **23**: 777 (Sept.) 1930.
5. Magalhoes, Fernando: Consideraciones sobre Etio-Pathogenia Da Chamada Elephantiase Vulvar, Imprensa Nacional, Rio de Janeiro, 1927.
6. Senear, F. E., and Cornbleet, Theodore: Granuloma Inguinale, Arch. Dermat. & Syph. **25**: 167 (Jan.) 1932.
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CONCLUSIONS

Granuloma inguinale is of common occurrence among the Negroes of Washington.

While irradiation is reasonably effective, the most certain results are obtained by a freshly prepared solution of antimony and potassium tartrate or injections of ampules of antimony thioglycollamide.

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HYPERPROTEINEMIA AS A CAUSE OF AUTOHEMAGGLUTINATION

OBSERVATIONS IN A CASE OF MYELOMA

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Clinical pathologists occasionally experience difficulty in counting erythrocytes because of unusually rapid rouleau formation. In extreme cases it may be impossible to count red cells because of immediate clumping before the blood is mixed with diluting fluid. This condition often presents difficulties when the occasion arises for a blood transfusion. Prompt rouleau formation of all foreign erythrocytes suspended in the patient's serum causes confusion and inability to select donors until the nature of the underlying mechanism is understood. A case in which both of these difficulties were encountered directed us to inquire into the underlying causes and led to the following observations on a highly pathologic plasma.

Abnormally rapid rouleau formation has been observed for many years and is known by various names —autohemagglutination, panagglutination, pathologic panagglutination and pseudo-agglutination. It is sharply distinguished from true iso-agglutination and from auto-agglutination, which is affected by changes in temperature. The earliest comments on abnormal rouleau formation were made by Hewson [1] in 1797. Many others have made similar observations and believed that the reaction was due to changes of surface tension of the red cells. It was noted that rouleau formation was most marked in blood from patients with inflammatory disease. More recently the phenomenon has been especially noted in cases of pneumonia by Shattock,[2] Bond,[3] and Clough and Richter.[4] Kligler [5] observed auto-agglutination in a pregnant woman. A number of explanations have been advanced for this phenomenon. Wiltshire [6] believed that viscosity exerted only slight influence but at the same time stated that certain colloids, such as acacia, caused rouleaux to form. Bond [3] believed the reaction to be due to changes in the red cells. Kramár and Reiner [7] impli-

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7. Kramár, Eugen, and Reiner, Ladislaus: Ueber Ursache und Entstehung der pathologischen Hämagglutination (Panagglutination), Arch. f. exper. Path. u. Pharmakol. **137**: 315, 1928.

cated changes in blood lipoids. Fåhraeus,[8] Starlinger[9] and others advance the most logical explanation of the phenomenon. Fåhraeus has shown that rouleau formation is due to changes in electric charge resulting primarily from an alteration of the albumin-globulin ratio of the plasma. The globulin and fibrinogen content increases and causes an increase in the viscosity of the blood. Many infectious diseases, pregnancy, and certain other conditions are accompanied by an increase of the blood globulin and fibrinogen.[10] Panagglutination is especially striking in lobar pneumonia and kala-azar, both diseases associated with marked increase of blood globulin and fibrinogen. It is also noted during pregnancy, which is likewise characterized by an increase in blood globulins.

In regard to difficulties in grouping blood prior to transfusion, similar phenomena are implicated. The patient's plasma, if abnormally rich in globulin or fibrinogen, causes prompt rouleau formation of all foreign erythrocytes regardless of type, and unless the reaction is examined microscopically it is apt to be mistaken for the amorphous, disorderly clumping of incompatible bloods. The patient's erythrocytes, however, do not form rouleaux in normal foreign serums and clump only when mixed with the serum of incompatible groups. The abnormality, therefore, exists in the patient's plasma. Abnormally rapid rouleau formation disappears on slight dilution and thus can be easily distinguished from the clumping of iso-agglutination.[2] The active principle causing rouleau formation cannot be absorbed from the plasma in contrast with the iso-agglutinin. The question arises regarding the possible danger of transfusion in a patient whose plasma is known to cause panagglutination of erythrocytes regardless of the group. Fåhreaus has shown that rouleau formation of this nature occurs only during retardation or stasis of the blood flow. Transfusion, then, is usually safe, provided the donor's blood is of the proper group.

The same conditions that cause abnormal rouleau formation are responsible for changes in the sedimentation rate of red cells. In the case reported here, further evidence is presented in support of Fåhraeus' conclusions in regard to the increase of globulin and fibrinogen as a cause of panagglutination.

The case is reported for the following reasons: 1. The clue to the plasma protein changes and to diagnosis was obtained by the inability to count the erythrocytes. 2. The decreased sedimentation time and the hyperproteinemia were associated with bone marrow disease.

REPORT OF CASE

History.—G. N., a white man, aged 46, complained of painful swollen joints. His case was observed in the outpatient department as one of chronic arthritis. Since little or no improvement occurred he was sent to the medical service of the University Hospital, Oct. 13, 1931. He was given ten injections of streptococcus vaccine intravenously between October 13 and December 15 under the direction of the outpatient department staff.

In the fall of 1930 (one year before) the patient began to tire easily and noted a slight aching in both ankles. Several months later, in February, 1931, a sudden pain developed in the right ankle which lasted two or three days. A few days later the left ankle became painful, swollen and red and remained so until admission. Both knees were next involved, but the swelling and redness subsided considerably, leaving only the pain. The shoulders, elbows and hands were painful at times and there was occasional backache. The patient lost about 35 pounds (16 Kg.) from the onset of symptoms until admission to the hospital. He stated that he spent short periods of time in bed and occasionally had fever, which was never measured. Crutches were required for walking. Four days after admission a painful swelling occurred over the left temporomandibular joint, which lasted about a week and subsided (bursitis?). His past history was generally good. He had "arthritis" at 22 but was ill only two weeks. At 31 he had jaundice, lasting two weeks.

Physical Examination.—The patient was of small stature, somewhat emaciated and pallid. The eyes showed slight opacities of the cornea. The lungs were clear. The first heart sound was faint; there was reduplication of the second sound. There was a slight sclerosis of the brachial vessels. The spleen and liver were palpable, the latter 1 inch below the costal margin. The blood pressure was 120 systolic and 70 diastolic. The temperature was normal except for a slight elevation to 37.6 C. (99.6 F.) following vaccine therapy. The pulse rate was from 60 to 80. The patient weighed 122 pounds (55.3 Kg.). The patient's ankles were slightly red, swollen and tender. Motion was limited, and walking was possible only on crutches. The knees and elbows were somewhat stiff. Other joints were normal.

Roentgen examination, October 17, revealed evidence of chronic infection of the lower respiratory tract and bilateral calcified hilus nodes. There was chronic arthritis in the stage of synovitis of the right ankle; destructive process in the right sacro-iliac joint, and slight evidence of involvement of the transverse articulations of the lumbar spine suggestive of arthritis.

Red blood cells numbered 3,200,000; hemoglobin, 63 per cent; leukocytes, 5,000; polymorphonuclear cells, 44; lymphocytes, 48; monocytes, 4; basophils, 1, and eosinophils, 3 per cent. Examination of the urine showed: albumin +++, numerous granular and hyaline casts, and a few red cells; two days later: albumin +, few leukocytes; nonprotein nitrogen, 23 mg. The phenolsulphonphthalein output was 45 per cent in two hours. The specific gravity of the urine in a dilution-concentration test varied from 1.005 to 1.022. The Wassermann reaction of the blood was negative. The P-R interval was 0.21 second. There was a left ventricular preponderance and sinus arrythmia.

In spite of the evidence of nephritis, streptococcus vaccine was given intravenously with no apparent ill results. After the first few injections the patient reacted in the usual manner with a slight elevation of temperature, pulse rate and malaise. There was no improvement in his joint pains and he lost weight progressively.

After the third injection of vaccine a heavy trace of albumin reappeared in the urine. The albuminuria diminished and almost disappeared, when another cloud appeared after the next vaccine treatment. One or two injections apparently did not provoke albuminuria, but after the seventh injection it persisted and vaccination was discontinued. No Bence-Jones proteinuria occurred.

The patient's joint symptoms improved somewhat, but he complained of increasing weakness and vague gastric disturbance. The gastric contents showed achlorhydria but no retention. Roentgen examination revealed a polyp in the lower third of the stomach. The hemoglobin declined to 54 per cent and the erythrocytes to 3,100,000 (December 12). The leukocytes numbered 6,000 with 52 per cent polymorphonuclear cells and 40 per cent lymphocytes. There were 120,000 blood platelets per cubic millimeter. A second concentration-dilution test showed a range of specific gravity from 1.012 to 1.017. The phenolsulphonphthalein output was 50 per cent in two hours. The urea nitrogen of the blood was 25.9 mg. By December 20 he had lost 11 more pounds (5 Kg.).

Difficulty was experienced in counting erythrocytes, December 18. The red cells formed tight rouleaux which could not be separated by shaking. Difficulty was noted in preparing films of blood on slides for morphologic study. It was also reported

8. Fåhraeus, Robin: The Suspension Stability of the Blood, Acta med. Scandinav. **55**: 1 (May) 1921; Physiol. Rev. **9**: 241 (April) 1929.
9. Starlinger, W.: Ueber Agglutination und Senkungsgeschwindigheit der Erythrocyten, Biochem. Ztschr. **114**: 129, 1921.
10. Gram, H. C.: Studier over Fibrinmaengden, Copenhagen, Steen, Hasselbalch, 1921; On the Causes of the Variations in the Sedimentation of the Corpuscles and the formation of the Crusta Phlogistica ("Size," "Buffy Coat") on the Blood, Arch. Int. Med. **28**: 312 (Sept.) 1921.

to be impossible to secure a donor for blood transfusion, since the patient's serum "clumped" the erythrocytes of all prospective donors. It was noted that the patient's corpuscles did not clump in group II serum.

After these reactions had been observed, attention was directed to plasma protein changes. The sedimentation time of erythrocytes, measured in a tuberculin syringe, was such that complete sedimentation occurred within ten minutes in citrated blood. Large clumps of erythrocytes were visible macroscopically during the settling period. On centrifugation the red cells occupied a volume of 0.1 cc., the plasma 0.9 cc. The plasma viscosity (Hess viscosometer) was 7 as compared with normal plasma viscosity of 1.7 according to the technic employed. The bleeding time was 1.5 minutes and the clotting time seven minutes (test tube method). At the end of four hours no free serum was expressed from the clot, an observation made by Perlzweig [11] under similar conditions.

The plasma proteins were increased to 10.12 per cent protein, of which 5.48 per cent was fibrinogen, 2.37 per cent euglobulin, 1.47 per cent pseudoglobulin I and II, and 0.9 per cent albumin. Blood calcium was 18 mg. per hundred cubic centimeters (Dr. Grace Medes). Because of the marked plasma changes, myeloma was suggested. Jan. 6, 1932, a note by Dr. H. J. Nilson stated that the neutrophils were normal in size but appeared toxic. There was a definite shift to the left. Many band forms, metamyelocytes, a few myelocytes and a rare promyelocyte were present, totaling in all 30 per cent; lymphocytes 60 per cent, mostly mesolymphocytes. Many appeared slightly immature. There were a few stem cells with nucleoli and fine leptochromatic nuclei; the cytoplasm was very blue. About 10 per cent of the cells were plasma cells. Many appeared immature, reverting to the Türk irritation cell type. From the blood picture, multiple myeloma must be considered.

The patient failed gradually and on Jan. 3, 1932, became unresponsive. During a physical examination, January 4, a fracture in the upper third of the right humerus was discovered. Roentgen examination revealed a pathologic fracture across an area of lessened density. There was marked osteoporosis of the pelvis and the upper ends of both femurs; it was less marked in the skull. The appearance was suggestive of a diffuse carcinomatous process or other type of osteoporosis.

The patient became stuporous and was supported for several days by intravenous injections of physiologic solution of sodium chloride and dextrose. He died, January 8.

At necropsy the principal gross manifestations included a pathologic fracture of the right humerus, beginning bronchopneumonia and a benign fibroma in the wall of the stomach. The bone at the site of fracture was thinned and appeared as if eroded by some process from within the shaft. The marrow cavity contained a blood clot and soft, friable, grayish white tumor tissue. Histologically the liver showed an increase, here and there, of periportal lymphocytic cells. There was also evidence of cloudy swelling and slight fatty metamorphosis. The kidneys, aside from slight degeneration of the tubules, were normal. There were no changes in the parathyroid glands, suprarenals or the spleen. Examination of portions of bone marrow from the humerus (Dr. Hal Downey) revealed a great majority of cells resembling medium sized lymphocytes. Here and there were plasma cells containing an eccentric nucleus or occasionally two nuclei. The protoplasm of the cells showed vacuolization characteristic of myeloma cells.

COMMENT

A case of multiple myeloma was observed which in the early period of observation did not present suggestive roentgen evidence of bone disease. Intermittent albuminuria occurred, but Bence-Jones proteinuria never appeared. It was interpreted as a case of chronic arthritis because of the joint pains, secondary anemia and loss of weight. This is not an unusual diagnostic error, according to Geschickter and Copeland.[12]

The clue to the diagnosis in the case here reported was furnished by the spontaneous rouleau formation of the red cells, which led to the discovery of marked hyperproteinemia. Later in the course of the illness the morphologic characteristics of the blood became suggestive of myeloma, and the occurrence of a pathologic fracture made the diagnosis more definite. The hypercalcemia raised the question of hyperparathyroidism and osteitis fibrosa cystica, but the blood calcium may reach high levels in multiple myeloma, as observed in this clinic and by Jores [13] and others. Roentgen evidence indicated a pathologic fracture of the humerus and diffuse osteoporosis elsewhere.

The increase of globulin and fibrinogen in the blood, which occurs in certain cases of multiple myeloma,[14] has received but little attention. Hyperproteinemia as high as 16 per cent was observed in one of six cases of myeloma by Medes.[15] These observations are in harmony with the opinion of Müller [16] and Magnus-Levy [17] that the bone marrow is a source of blood proteins, in contrast with the theory of Wohlgemuth,[18] Gram,[19] and others who regarded the liver as the chief source of fibrinogen and globulin. It is possible, however, that both liver and bone marrow are sources of blood protein and that the hyperproteinuria which occurs in so many infectious diseases and after the injection of foreign protein [19] results from "irritation" or stimulation of these organs.

Furthermore, the observations have a bearing on the views of Herzfeld and Klinger [19] and of Frisch and Starlinger,[20] who suggested that blood proteins originate as a result of disintegration of leukocytes. This theory seems especially well substantiated in certain cases of myeloma and in other diseases affecting the cells of the bone marrow and other portions of the endothelial system, as in kala azar, for example. In both myeloma and kala azar there exists direct evidence of abnormal formation and destruction of leukocytic cells. It does not seem unreasonable, then, to suggest that the striking increase of blood protein in these diseases may be due to this cause. In considering myeloma, and certain other conditions, it is possible that Bence-Jones protein may arise as the result of the formation and dissolution of a certain type of abnormal cell. It is also possible that Bence-Jones protein may arise from the excessive formation and destruction of certain cells found normally, but ordinarily in such small numbers as to give rise to this protein in amounts too small to be detected.

The studies in the present case add further evidence to show that hyperproteinemia, especially hyperinosis, is a cause of panagglutination of erythrocytes. The patient's plasma, which contained an increased amount of fibrinogen and euglobulin, caused prompt rouleau formation of all foreign erythrocytes. The patient's erythrocytes formed tight rouleaux in the patient's plasma, but not in compatible serum or plasma from normal individuals. These phenomena, together with

11. Perlzweig, W. A.; Delrue, Georges, and Geschickter, Charles: Hyperproteinemia Associated with Multiple Myelomas, J. A. M. A. **90:** 755 (March 10) 1928.
12. Geschickter, C. F., and Copeland, M. M.: Multiple Myeloma, Arch. Surg. **16:** 807 (April) 1928.
13. Jores, A.: Differential diagnose des multiplen Myeloms und der Ostitis fibrosa generalisata, Klin. Wchnschr. **10:** 2352 (Dec. 19) 1931.
14. Kumpf, A. E.: The Blood Proteins, Arch. Path. **11:** 335 (March) 1931.
15. Medes, Grace: To be published.
16. Müller, P. T.: Ueber chemische Veränderungen des Knochenmarks nach intraperitonealer Bakterieneinspritzung, Beitr. z. chem. Physiol. **6:** 454, 1905.
17. Magnus-Levy, A.: Myeloma Disease: Bence-Jones Proteinuria, Ztschr. f. Klin. Med. **119:** 307 (Jan. 22) 1932.
18. Wohlgemuth, J.: Ueber die Bildungstätte des Fibrinogens, Berl. klin. Wchnschr. **54:** 87, 1917.
19. Herzfeld, E., and Klinger, R.: Studien zur Chemie der Eiweisskörper, Biochem. Ztschr. **83:** 228, 1917.
20. Frisch, A., and Starlinger, W.: Chemisch-Physikalische Blutuntersuchungen zur Frage der Protoplasmaaktivierung, Ztschr. f. d. ges. exper. Med. **24:** 142, 1921.

the decreased sedimentation time of erythrocytes, conform to the behavior of erythrocytes in many other conditions associated with increase of the globulin and fibrinogen of the blood.

SUMMARY

In a case of myeloma without Bence-Jones proteinuria, the clue to the underlying condition was obtained by an inability to count erythrocytes because of immediate rouleau formation. As a result of this phenomenon, difficulties were encountered in preparing blood smears and in selecting a suitable donor for blood transfusion. Similar phenomena are encountered in other conditions associated with hyperproteinemia, as in pneumonia, kala-azar and pregnancy. Marked hyperproteinemia was present in the case of myeloma here reported. It is suggested that, in this case, disease of the bone marrow may be largely responsible for the increase of globulin and fibrinogen.

PNEUMONOCONIOSIS

AN UNUSUALLY ACUTE FORM

EUGENE S. KILGORE, M.D.
SAN FRANCISCO

The following cases of pneumonoconiosis are presented because of their early development after comparatively short exposure, their paucity of clinical and roentgenologic evidences of the disease, and their rapidly fatal course. In these respects I have been unable to find anything approaching their counterpart except in two brief British reports, referring to the same industry as here described—the manufacture of scouring powder for domestic use. Lennane [1] mentions such a factory, in which, with only fifteen employees, there were six or seven deaths in two years. The other report is by MacDonald, Piggot and Gilder,[2] and I am informed by Dr. E. L. Middleton, British inspector of factories, that they refer to the same cases as does Lennane. They describe two of the workers in this factory. The one, a girl aged 17, developed cough after about twenty-nine months of exposure to the dust; she worked another four months and died about thirty-five months after the beginning of exposure. The other, a girl, aged 19, worked in the dust fifty-one months and died six weeks after quitting work. A roentgenogram of the chest a few weeks before death was "suggestive of miliary tuberculosis." Examination of the sputum and the necropsy in both cases yielded no evidence of tuberculosis. The lungs, though without pleural adhesions, were incollapsible, heavy, tough, gritty to cut, and partly solidified. The dust in which these girls worked contained about 75 per cent pure silica and 25 per cent soap with sodium carbonate.

CASE 1.—H. W., a man, aged 31, came of a rather long lived family without known tuberculosis. He had had excellent health from boyhood, did not remember even the usual childhood infections, and had had fewer and milder infections of the respiratory tract than do most people. He smoked cigarets moderately and drank alcohol rarely. Formerly a mechanic, in August, 1929, he took employment as foreman for a small firm engaged in the manufacture of a polishing powder for kitchen use. For a few weeks about the time he began this work and again in the following April he complained of gnawing epigastric pain one or two hours after meals. Roentgenograms of the gastro-intestinal tract indicated possibly a small duodenal ulcer, and he was relieved of the pain by an ulcer regimen. The first symptom properly referable to the pneumonoconiosis was dyspnea on effort, which came on gradually in July, 1930; i. e., after about eleven months' exposure to the dust. In the following month he left work, as the climbing of one flight of stairs then produced marked dyspnea, perspiration and a "depressed feeling" or weight sensation in the lower right portion of the chest. A few weeks later this sensation occurred in both sides of the chest, with exercise, but especially when turning from one side to the other in bed. For a few days there was scanty blood-streaked sputum, but in general the early months of the illness were comparatively free from cough and sputum.

Physical examination in April, 1930, revealed no significant abnormalities. In October there was whispered voice down to the ninth dorsal spine and at the right apex a very few fine crepitant râles with cough. Thirty stationary trotting steps produced well marked dyspnea (respiratory rate, 40) but with only moderate pulse acceleration (from 75 up to 100) and blood pressure response (from 110/75 up to 140/80). The preexercise pulse and blood pressure levels were resumed in about one minute. The man's height was 175 cm., weight 68.4 Kg., chest circumference in inspiration 85 cm., in expiration 81 cm., vital capacity 2,500 cc., breath held (without deep inspiration) fifteen seconds. He looked well and there were no other significant physical manifestations. Hemoglobin, red and white blood cell counts, urine, feces, prostate secretion and electrocardiograms were normal. The Wassermann test was negative.

The roentgenologic examination of the chest was reported by Dr. J. M. Rehfisch, who found that fluoroscopically the diaphragm moved well and equally on the two sides. Stereoscopic films showed a quite unusual and very fine capillary fibrosis of the bronchial markings throughout both lung fields, most marked at the apexes. The lesions suggested an unusual type of finely disseminated and rather advanced pulmonary silicosis. The heart-vessel shadow was within normal limits.

The patient died one year later, Oct. 30, 1931. For some months his condition seemed about stationary and he was able to walk about slowly. Later the effort dyspnea increased, and there were paroxysms of severe pain in the central part of the chest radiating to the left arm which were excited by effort and finally by bending forward or even turning in bed. During the last five weeks he was observed by Drs. P. K. Brown and C. P. Durney at the Alum Rock (tuberculosis) Sanatorium. The picture there was one of pulmonary fibrosis with right heart embarrassment. The pulse rate was 106, temperature from 96.4 to 103.2 F., and daily sputum about 10 cc., but tubercle bacilli were never found. Necropsy was not permitted.

The attempt to trace others who had been similarly exposed to the dust in this plant met with difficulties. The manager did not welcome investigation; he declared that several years before he had worked for about thirty months in the dustiest part of the place and that he was in excellent health, but he declined to have a roentgenogram of his chest made for fear of disturbing his religious thought system. As a rule the factory labor comprised but from one to three hands, and of the thirty so employed during the nine or ten year life of the company, most of them worked for but short periods. The following data, culled from public records, from employees and from their relatives and friends, probably embrace a fairly accurate record of all or nearly all of those who worked for from nine to twelve months or more in the dusty part of the establishment—aside from the problematic manager.

CASE 2.—A. G., a man, aged about 70, was employed from December, 1922, to March, 1924, during a period when pulverized quartz was bought and only mixing was done. He died in November, 1929. The coroner's necropsy diagnosis was chronic myocarditis, coronary sclerosis and terminal broncho-

Read before the Association of American Physicians, May 4, 1932.
From the Department of Medicine, University of California Medical School.

1. Lennane, G. Q.: J. State Med. **37**: 602 (Oct.) 1929.
2. MacDonald, G.; Piggot, A. P., and Gilder, F. W.: Lancet **2**: 846 (Oct. 18) 1930.

pneumonia. He was said to have had asthma for twenty-two years.

CASE 3.—J. K., a man, aged about 50, was employed, with a short interim for a hernia operation, from January, 1925, to about March, 1927. The firm began its own grinding of quartz in February, 1926. This man died in October, 1927, after complaining for some time of a "chest condition." The death certificate was signed "myocarditis." Some years previously he was said to have worked in mines.

CASE 4.—H. L., a man, aged about 36, employed from February to November, 1927, and off and on in 1928, about fourteen months in all, is now living in a hospital with advanced pulmonary tuberculosis. There are tubercle bacilli in the sputum. The family and past histories are negative except for pneumonia at 12 and influenza in 1918. A burning sensation in the epigastrium began early in 1928, later dyspnea and cough, and he became a patient at the Stanford Clinic when hemoptysis occurred early in 1929. In addition to cavities and the like, the roentgenogram shows extensive mottling through the middle two thirds of the right and middle third of the left lung.

CASE 5.—D. M., a man, aged about 39, was employed from about December, 1926, to February, 1928, when he quit on account of injury to his hand. He died, Feb. 14, 1930. Beginning in December, 1928, there was gradually increasing dyspnea, loss of weight from 68 to 50 Kg., night sweats, orthopnea, cough, and, toward the end, chest pain and bloody sputum. It was said that he had never been sick before. Fragmentary notes from a coroner's necropsy mention "adhesions about the lungs, pericarditis, myocarditis, endocarditis, cirrhosis of liver, nephritis, and splenitis." A few days before death, however, a well trained roentgenologist (Dr. R. G. Van Nuys) had reported: "Strands of fibrosis and mottling throughout the lungs . . . more density in the upper left lobe and about the right hilus . . . adhesions through the pleura at the right arch of the diaphragm . . . Conclusion: tuberculosis. However, this must be differentiated from fungus and silicosis. There is no definite cavity formation, though there are small annular shadows in the upper right lobe."

CASE 6.—J. W., a man, aged 31, employed from June, 1928 to about April, 1929, died Aug. 11, 1929. Through the courtesy of Dr. L. J. Overstreet, under whose care he died, comes the information that the family and the past history were negative except for minor childhood illnesses and an uneventful appendectomy in 1915. There were no respiratory, cardiac, gastro-intestinal or genito-urinary symptoms in the past. In the last three months only were there gradually increasing dyspnea on effort, general weakness, palpitation and some cough, but no sputum. Toward the end the lips and ears were slightly cyanotic, and there were coarse and medium râles throughout both lungs and some dulness and increased fremitus on the left. The heart was not remarkable. The blood pressure was 110 systolic and 65 diastolic. During the four terminal days in the hospital the pulse ranged from 84 to 128, respiration from 30 to 40, temperature from 36.5 to 38 C. (97.7 to 100.4 F.). Leukocytes numbered 17,400; polymorphonuclears, 87 per cent; lymphocytes, 12 per cent; eosinophils, 1 per cent. There was a trace of albumin, with occasional hyaline and granular casts, a few leukocytes and red cells. Six weeks before death a roentgenogram of the chest was reported by Dr. J. M. Rehfisch as suggesting miliary tuberculosis. He later compared this with the roentgenogram in case 1 and recognized the close similarity, though the diffuse fine mottling was even less marked in the roentgenogram of case 6. There was no necropsy.

A recapitulation of the approximate history of these six men is shown in the accompanying table.

The age of A. G. and other features of his case preclude any deductions as to the effect of silica. The data concerning J. K. are too meager to mean much if considered alone; but as oriented with this group of employees, they permit little doubt that he died of silicosis. The tuberculosis of H. L. was undoubtedly activated by the dust. D. M., in view of the roentgen report, almost certainly had the disease. And, as to patients 6 and 1, there can be no doubt. For early onset of symptoms after beginning silica exposure and for rapidly fatal progress of the disease, I believe that these cases are unprecedented in the literature. Noteworthy are the marked effort dyspnea preceding cough or sputum, and the inconspicuous roentgen markings in case 6 only a few weeks before death.

The factory in which these men worked is equipped with a rotary mill for pulverizing quartz, the fine powder being carried by a fan to a storage tower. Normally the system is closed, but there were times when part of it was out of order and the pulverized quartz was shoveled. Dust inevitably escaped in sacking the product, and there was always more or less dust on the floor to be thrown into the atmosphere by those walking about. Part of the powdered silica was disposed of as such, and part was used on the premises in the manufacture of a secret formula polishing powder. Soap was one of the ingredients; it was ground and incorporated with the silica flour in a closed rotary mixing machine, and the product was filled by hand into small marketing containers. Soap grinding and mixing of the scouring powder was done only at certain times—perhaps averaging three to six days a month—but, though ventilation appeared to be adequate, there

Course of Illness in Six Cases

Name	Age	Dust Exposure	Onset of Symptoms After Beginning Exposure	Life After Beginning Exposure
A. G.	70	16 months (but not grinding quartz)	?	7 years
J. K.	50	27 months	?	33 months
H. L.	36	14 months	14 months	Still living
D. M.	39	14 months	24 months	50 months
J. W.	31	10 months	9 months	14 months
H. W.	31	12 months	11 months	21 months

was doubtless at all times more or less contamination of the air in the factory by the combined dust of the scouring powder.

It was not possible to secure an air sample during operation of the plant. A sample of the scouring powder was washed in water to remove soluble matter, and the remaining solid particles of quartz were found to be mostly about 1 micron in diameter. Another sample was examined in the chemical laboratory of the California Department of Public Health and was reported to contain soap, 9 per cent; water soluble sodium carbonate, 0.5 per cent, and abrasive material, 90.44 per cent.

In view of the British experience with a similar industry, it is probable that the accelerated course of the silicosis in these cases was due to the combined inhalation of alkali or soap or both with the quartz dust, and that the mixture (presumably the alkali) enormously increases the noxious effects of silica. Worthy of the attention of health authorities is the suggestion of MacDonald, Piggot and Gilder [2] that much of the hazard might be eliminated by insisting on the use of a wet process in manufacture whereby soap and alkali are dissolved and crystallized together before grinding, the resulting powder being high in water content, heavy, and settling quickly if thrown into the air.

The manufacture of abrasive soaps and powders is a fairly extensive industry, and it is probable that many cases of acute silicosis, masked by the peculiar circulatory or respiratory manifestations, exist unrecognized.

Since this manuscript was written, Chapman [3] has reported three other cases of acute silicosis in workers engaged in mixing silica and soap (presumably alkaline). None of them, however, had a course so rapidly fatal as two in the group here reported. Dr. N. W. Jones of Portland, Ore., has also called my attention to the report of Betts,[4] which refers to the very short life of several men employed in the dry grinding of quartz. Although the clinical details are meager, it seems probable that they were cases of acute silicosis resulting from massive doses of very fine silica dust, without the admixture of soap or alkali.

490 Post Street.

Clinical Notes, Suggestions and New Instruments

FOURTH OF JULY ACCIDENT: EXTENSIVE FATAL INJURIES FROM EXPLOSION, WITHIN THE MOUTH, OF A GIANT TORPEDO

JOHN W. KLOPP, M.D., PHILADELPHIA

This report deals with an unusual injury in a patient whose death represents the sole fatality from Fourth of July fireworks accidents in Philadelphia's vital statistics for 1931.[1]

T. M., a robust white man, aged 42, was carried to the receiving ward at about 10:45 p. m., July 4, 1931, by some friends, who gave the following account of the accident: The patient, while intoxicated, accepted a wager from one of his drunken friends to place a torpedo in his mouth and to chew down on it.[2] This he did, first placing the object well back in his mouth between the left molars "to get a good bite," whereupon he was severely injured by the explosion and was brought immediately to the hospital.

Superficial examination showed the man to be conscious, but critically injured and in profound shock. He had the smell of "liquor" about him. Consequently, his injuries were ignored, except for covering with sterile gauze, while shock treatment was instituted. This consisted in the application of heat, elevation of the foot of the bed, and the administration of an appropriate dose of morphine and atropine, and of intravenous infusion of warm physiologic solution of sodium chloride. At the end of about two hours, he had reacted sufficiently to make operative intervention advisable; accordingly, operation was commenced at 1:30 a. m., July 5. This was preceded by the intramuscular injection of 1,500 units of antitetanic serum.

Ether was administered intratracheally, through a nasal catheter. The patient's head was shaved and the field of operation cleansed with liniment of soft soap, followed by drying, and painting with a mixture of benzine and iodine. Extensive lacerated wounds were noted extending in radial fashion from six or seven places about the circumference of the mouth, through the entire thickness of both lips and the left cheek. The wound at the left angle of the mouth was especially jagged and long, its gaping edges laying bare the mandible, maxilla, tongue and neighboring structures, none of which were accurately identifiable because of distortion. As might be expected from an explosive force bursting outward, the soft parts had been torn from both jaws and the wound of the left side of the face involved the entire thickness of its musculature, the facial artery, the facial nerve, Stenson's duct, and the parotid gland. The tongue had been ripped almost completely from the floor of the mouth back to its base, and both pharyngeal pillars were torn. The hard palate had burst upward, opening the nasal cavity from inside the mouth, which was also exposed through the wound resulting from avulsion of the upper lip from the maxilla. There was a compound fracture, into the mouth, of the left ascending ramus of the mandible. The left maxillary sinus and left malar bone had burst outward and upward, the latter injury exposing the periorbital fat.

As much devitalized tissue as possible was excised, vessels were ligated, and wounds repaired, until, as one item after another in the list of injuries was discovered, it became apparent that they were almost of necessity fatal, and the patient's condition became poor. At this juncture the operation was terminated with dispatch by packing and closing the remaining wounds with through and through sutures of heavy silkworm gut. The operation was completed at 2:20 (fifty minutes' duration), and the patient died ten or fifteen minutes later.

During the operation there was discovered in the tissues of the left cheek two fragments of paper, one of which bore marks identifying it as the wrapping of the "giant" type of Fourth of July torpedo; and two or three pebbles were found. Toward the end of the operation, swelling of the soft parts of the neck was noticed, due to gradually increasing emphysema.

Necropsy was not performed, as the municipal authorities took charge of the body for criminal investigation.

618 West Lehigh Avenue.

3. Chapman, E. M.: Acute Silicosis, J. A. M. A. **98**: 1439 (April 23) 1932.

4. Betts, W. W.: Chalicosis Pulmonum or Chronic Interstitial Pneumonia Induced by Stone Dust, J. A. M. A. **34**: 70 (Jan. 13) 1900.

From the clinic of Dr. Astley P. C. Ashhurst (Surgical Service B), Episcopal Hospital.

1. A search of titles in the Quarterly Cumulative Index Medicus and its predecessor (from 1922 to March, 1932, inclusive) fails to reveal any reference to Fourth of July injuries under the headings "Accidents," "Explosions (-ives)," "Fireworks," "Fourth of July," "Independence Day," "Injuries," or "Trauma," with but two exceptions: Findlay, R. T.: Comparative Study of Treatment of Fourth of July Injuries at Beekman Street Hospital, New York, During Seasons of 1928 and 1929, J. A. M. A. **94**: 1824-1825 (June 7) 1930. Swanson, J. C.: Fourth of July Accident: Foreign Body Through the Brain, ibid. **96**: 1382 (April 25) 1931.

2. The torpedo in question was one of the "giant" variety, containing a large explosive cap in the center of a group of pebbles wrapped in a stout decorated paper jacket, measuring about 3 by 2 by 2 cm., not unlike a miniature bale of cotton in shape. These torpedoes explode with a terrific report by detonation. Despite the fact that their sale and possession in Philadelphia are prohibited by law, which is strictly enforced, they are sold in the suburbs during the Independence Day season and are widely used by the celebrators.

A CHARACTERISTIC SIGN IN FACIAL NERVE PARALYSIS

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A large number of comatose patients admitted through the emergency or ambulance services of hospitals present difficult diagnostic problems. The differentiation of cases of coma due to brain insult (hemorrhage or thrombosis) from those due to other causes, such as uremia or diabetic acidosis, is of prime importance.

If a flaccid hemiplegia is the presenting symptom, the detection of a facial paralysis is important for the localization of the lesion. The commonly known signs of facial paralysis, such as asymmetry of the face and puffing of the cheek, although useful, are often absent. In these instances, I have observed a sign diagnostic of facial paralysis that seems to point with regularity to the existence of a brain lesion. This is the subject of the present communication.

The test depends on a reflex embracing as the efferent arc the motor fibers of the seventh cranial nerve. The technic of eliciting this sign is as follows: The examiner places his hand on the patient's forehead, and with his thumb elevates the upper lid so as to expose the ocular bulb. With a swift motion the thumb is removed and the manner in which the lid is drawn back to its original position is observed. This test is done on each eye separately. On the normal side the eyelid retracts to its original position briskly and completely, so that the ocular bulb is concealed from vision. On the paralyzed side the recoil of the upper lid is sluggish, wormlike and incomplete, often leaving a fissure between the lids, which exhibits the eyeball. If the patient is not in coma and the eyes are open, he is asked to close them before the reflex is attempted.

This reflex is based on the fact that the upper lid is closed by the action of the orbicularis oculi, which is supplied by the seventh nerve. When the latter is paralyzed it cannot activate this muscle, which will then roll down by virtue of its intrinsic muscular tone, in contrast with the brisk response of the normal muscle.

I have tested the reflex in a variety of brain lesions, namely, cerebral hemorrhage, thrombosis, embolism and cerebrospinal syphilis, and have observed the sluggish lid reaction quite regularly on the paralyzed side of the face. If facial power returns, the active reflex does likewise.

A clinical note of interest is the ability to differentiate cases of crossed facial hemiplegia (Millard-Gubler syndrome) from those of complete unilateral hemiplegia (due to lesions of the internal capsule) by means of the "lid phenomenon."

216 Clinton Avenue.

Special Article

THE FUNDAMENTALS OF ELECTRO-CARDIOGRAPHIC INTERPRETATION

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CHICAGO

(Continued from page 1352)

COMPLETE HEART BLOCK

In complete A-V block, there is a complete dissociation of the auricles and ventricles, of the P and Q-R-S waves. The former, as a rule, occur regularly at a rate of about 75 per minute, the latter occurring regularly but independently at a rate of about 30 per minute. Thus two or three P waves will appear, sometimes with Ta waves evident, between the Q-R-S complexes. Not infrequently P waves will be superimposed on Q-R-S complexes and T waves.

The ventricular rate is about 30 per minute, when it results from an idioventricular focus, that is, when it is a true idioventricular rhythm, as in complete heart block. The ventricular rate is entirely independent of the auricular rate and rhythm, which may be normal or increased. A case of complete block may be masked clinically by the coexistence of a relative ventricular tachycardia. Ventricular extrasystoles may at times interrupt the regular idioventricular rhythm. Auricular fibrillation may occasionally be associated with complete heart block. Sometimes a complete block may change into a partial block and vice versa; or a partial block may change to a normal sinus rhythm and later back to a partial block. One may see a complete block in which atropine causes an immediate return to the normal rhythm, vagal influences being responsible for this type of block. Occasionally there is a complete heart block without any other manifestation of organic heart disease, the heart returning at once to a normal rhythm.

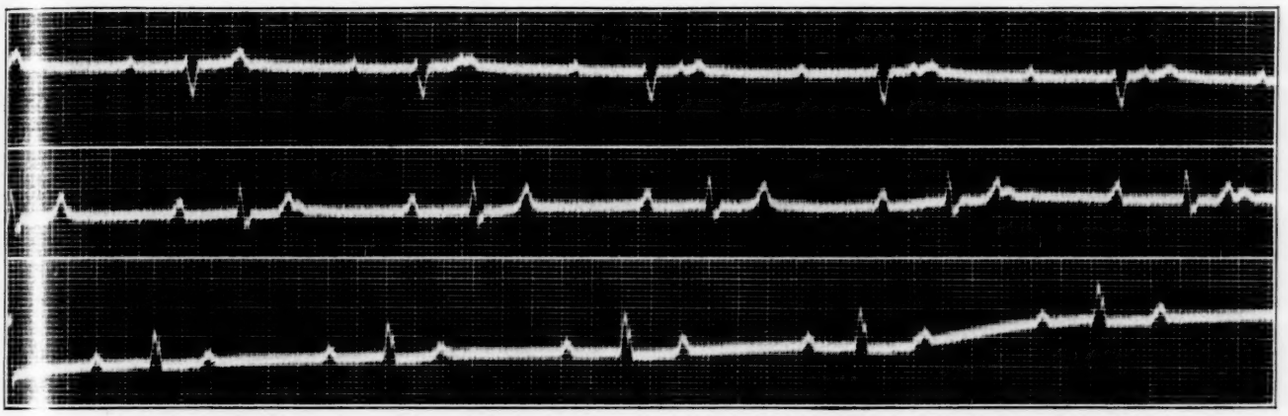

Fig. 75.—Complete heart block. A curve showing complete dissociation of the auricular and ventricular rhythms. The auricles and ventricles are beating regularly but at the independent rates of 80 and 40, respectively. There is no P-R interval here because auricular impulses are blocked and never reach the ventricles, which beat independently. Note that the interauricular periods during which a ventricular systole occurs are shorter than are those following the ventricular contraction. This curve appears at first to be a simple 2:1 heart block, but careful measurements reveal the complete dissociation.

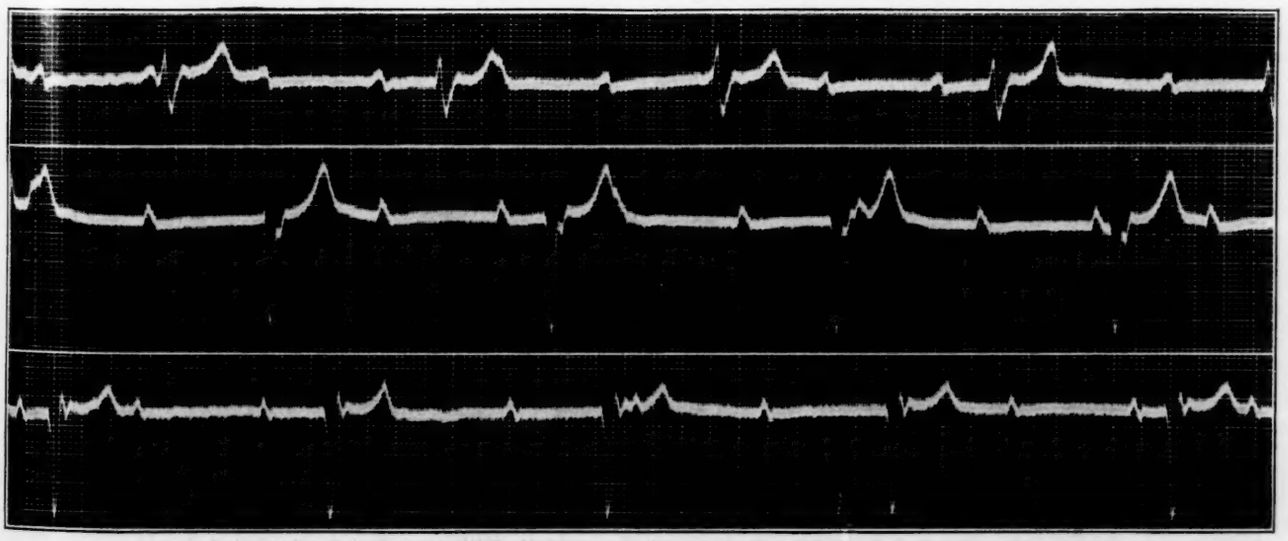

Fig. 76.—Complete heart block: Auricular rate, 80 per minute; ventricular rate, 38 per minute. Here the complete dissociation of auricles and ventricles is more readily apparent than in figure 75. Note that the interval (distance) from one P summit to another (buried or unburied) is constant, as is the interval between Q-R-S complexes. Many of the P waves are buried in the Q-R-S complexes or T waves. The P waves appear to run away from the Q-R-S complexes. Here, again, interauricular periods containing a Q-R-S complex are shorter than are those not containing them.

The P waves occur in varying relations to the Q-R-S waves, their relations constantly changing. The P-P interval is regular, but the P wave in its relationship to the other waves is constantly changing.

The Q-R-S complex is usually normal in contour. It is of supraventricular origin, originating in the junctional tissues. At times there may be notching and increase in the Q-R-S interval in one or all leads. The interauricular periods during which a ventricular systole occurs are shorter than those following the ventricular contraction. The first auricular cycle following a ventricular contraction is long, but successive

Fig. 77.—Complete block: Auricular rate, 90 per minute; ventricular rate, 60 per minute. Here, again, the P waves are seen running away from the Q-R-S complexes.

auricular cycles become shorter until the ventricles again contract. The T wave may be negative in one or more leads (figs. 75, 76, 77, 109 and 127).

ADAMS-STOKES' DISEASE

At times there occurs in cases of heart block a long period of ventricular asystole or marked slowing of the heart action, resulting in cerebral anemia. If this cerebral anemia lasts more than fifteen to thirty seconds, recovery is always complicated by convulsions or epileptiform seizures. This gives rise to a definite clinical entity known as Adams-Stokes' disease. These attacks are particularly liable to occur when partial passes into complete block or when complete block develops suddenly for any reason. This condition is the result of a gross lesion of the A-V junctional tissue, sclerotic usually, less frequently gummatous, and rarely acute inflammatory. It also occurs as a result of overaction of the vagus or from diminished irritability of the ventricular myocardium. If the attacks are mild there is momentary pallor with lapse of consciousness, whereas with longer attacks there occurs flushing of the face, which later becomes intensely cyanotic, twitching of the extremities, or even clonic convulsions with either absence of all evidence of ventricular activity or a ventricular rate of from 8 to 12 per minute. The attacks cease to occur when an idioventricular rhythm above 20 to 25 per minute has become established. The victims of this disease usually have a pulse rate between 25 and 40 per minute. Fainting spells, similar to those already described, often occur at such frequent intervals that the patient is in almost constant anguish. The disease usually makes its appearance in individuals past middle life; and although patients are sometimes seen who enjoy reasonably good health, the majority are incapacitated and are in constant danger, especially of one of these attacks of convulsive syncope. The prognosis is grave; probably 65 per cent die within one year of onset. Atropine, epinephrine and barium chloride are only occasionally effective as therapeutic agents (figs. 78 and 79).

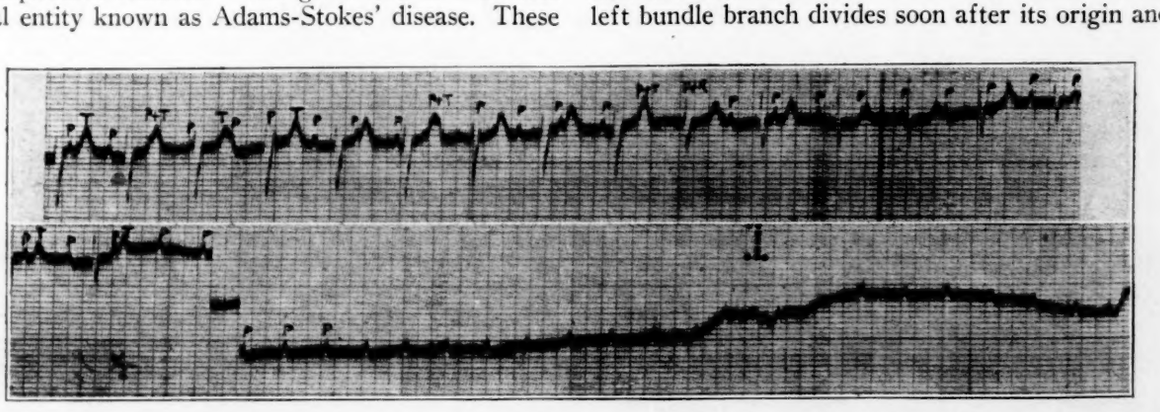

Fig. 78.—Adams-Stokes' disease: A continuous record of a patient who was having Adams-Stokes' syndrome with convulsive attacks. The ventricular beats stopped at *X*, the auricles continuing to beat to the end of the strip. The movement of the record at the end of the strip (at the extreme right) was due to the onset of a convulsion, fourteen seconds after the last ventricular systole. From "Clinical Aspects of the Electrocardiogram," Harold E. B. Pardee. Courtesy Paul B. Hoeber, Inc., New York.

BUNDLE BRANCH BLOCK

Intraventricular block of any grade is a result of defective conduction of the excitation wave through the specialized auriculoventricular conduction system below the main bundle. This defective conduction usually occurs in one or the other of the main branches, but it may also show itself in the lesser arborizations (Purkinje fibers) if these are extensively enough involved. Since a larger area of the Purkinje network must be involved before graphic evidence of the injury can be obtained, while but a slight lesion or defect in blood supply to one of the main bundles readily causes widening and slurring of the Q-R-S complex, it is probable that bundle branch block of varying degree is responsible for most of these changes.

More than 90 per cent of these cases show the right bundle branch involved. This is due to the fact that the left bundle branch divides soon after its origin and has a dual blood supply. The condition is most frequently seen in coronary artery disease and in hypertensive heart disease. It is rarely a transitory condition. There is an increase in the duration of the Q-R-S complex beyond 0.10 second; this is the most reliable criterion. This may be influenced by the thickness of the septum in greatly hypertrophied hearts. A striking feature is

the high amplitude of the Q-R-S complex, which is due to a lack of balance between the ventricles. Notching of the Q-R-S complex is usually present. In left bundle branch block the main Q-R-S deflection is down in lead 1. In right bundle branch block the main Q-R-S deflection is down in lead 3.

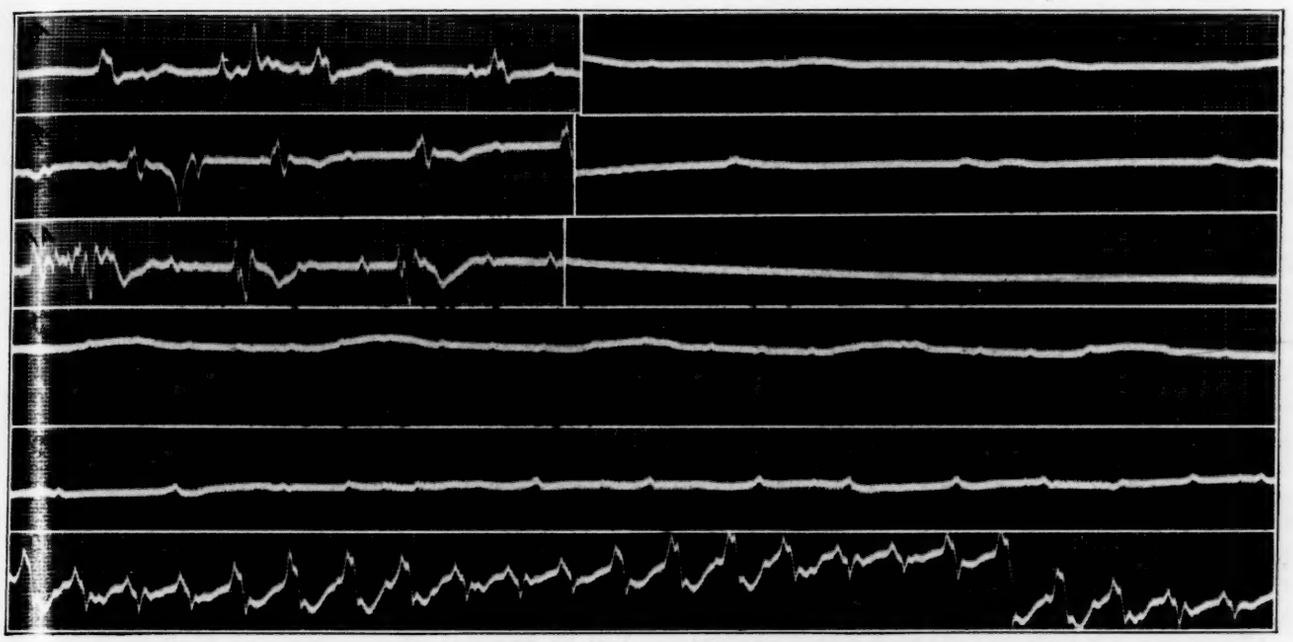

Fig. 79.—Adams-Stokes' disease: All records were taken during a single attack, $A_{1, 2, 3}$, $B_{1, 2, 3}$, $C_{1, 2, 3}$, although not continuous here, were taken in the order indicated. Group A reveals cardiac activity just before, group B during, and group C immediately after cardiac asystole. Duration of the period of asystole was estimated to be about twenty-five seconds. No convulsion occurred.

The T wave is tall and is in the opposite direction to the main deflection of the Q-R-S complex in the leads of largest excursion.

There is little difference in the significance of incomplete and complete bundle branch block; either is a significant graphic abnormality and furnishes reliable evidence toward an unfavorable prognosis (figs. 80 to 88).

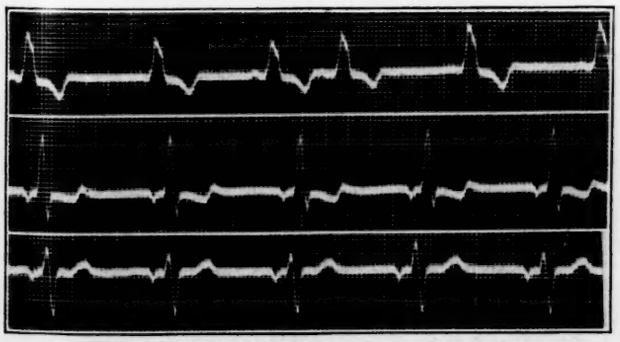

Fig. 80.—Right bundle branch block: Myocardial damage. Note that the main Q-R-S deflection is down in lead 3 and that the T wave is tall and is in the opposite direction to the Q-R-S deflection in the leads of largest excursion.

ARBORIZATION BLOCK

"Intraventricular block of lesser degree" is a more useful term to employ, because it covers both arborization block and partial bundle branch block, conditions that cannot be differentiated electrocardiographically. It may result from coronary disease or other cardiac pathologic changes; it may be transient and of little or no importance. There is prolongation of the Q-R-S complex, with marked notching of this wave as indicated in figures 89 and 90. It is probably the same as partial bundle branch block, except that the site of the lesion cannot be determined by electrocardiography.

SINUS ARREST

Sinus arrest is very rare. It is usually transitory. It is due to vagal effects and is abolished by atropine. It is usually seen in adults. It has little clinical significance. In S-A block there are dropped beats, the result of complete cardiac standstill (fig. 68). The interval is usually slightly less than the interval comprising two normal beats. Occasionally two or three beats may be omitted. Otherwise the electrocardiogram remains unaltered. The paralysis here is due to a depression of the pacemaker in the S-A node (an impulse was not initiated); the auricle was temporarily unable to respond to an impulse that may have been adequate or inadequate; the impulse was blocked

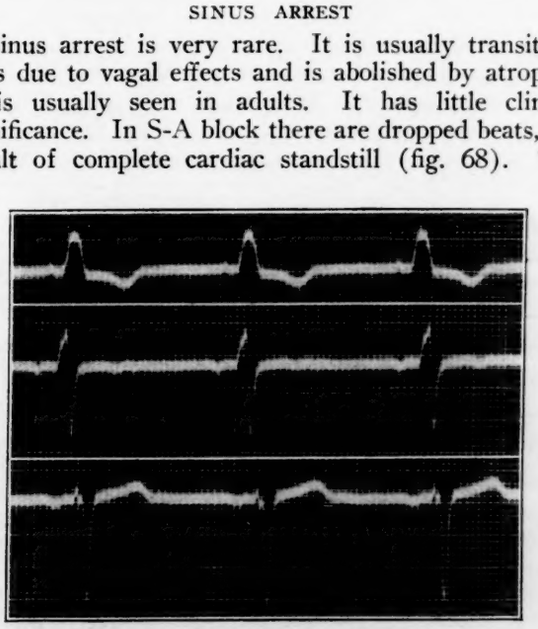

Fig. 81.—Right bundle branch block: Myocardial damage.

between the S-A node and the auricle; or the lower (A-V) node was unable to start an auricular contraction. This is a rare condition, whether it results merely in a dropped beat, in a high grade bradycardia (called

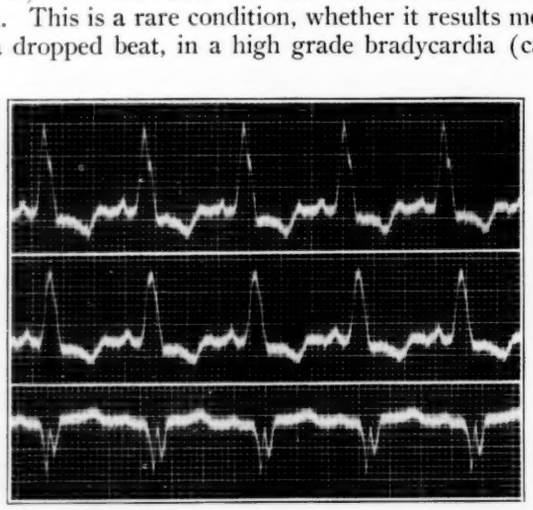

Fig. 82.—Right bundle branch block: Myocardial damage. $T_{1, 2}$ inverted, but here this does not mean coronary occlusion or overdigitalization. With as extensive cardiac disease as is present here, $T_{1, 2}$ negative are not dependable signs for further diagnosis.

partial S-A block), or in a complete auricular standstill. Of the factors responsible for sino-auricular block, toxic effects from digitalis and from quinidine are the

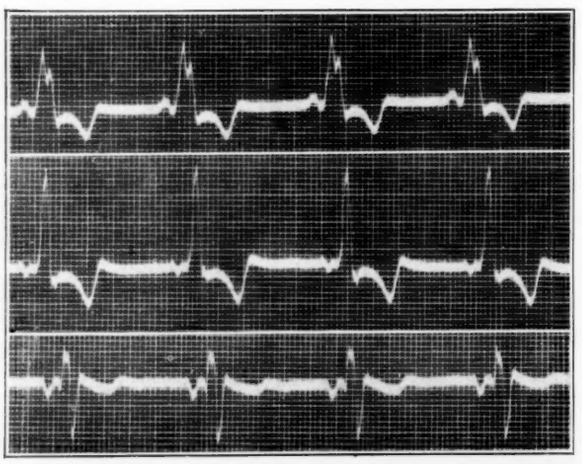

Fig. 83.—Right bundle branch block: Myocardial damage. Rate, 60 per minute. $P_{2, 3}$ inverted, $Q\text{-}R\text{-}S_{1, 3}$ notched. $Q\text{-}R\text{-}S_2$ slurred, $Q\text{-}R\text{-}S_3$ diphasic, S $T_{1, 2}$ depressed, $T_{1, 2}$ inverted, T_3 diphasic.

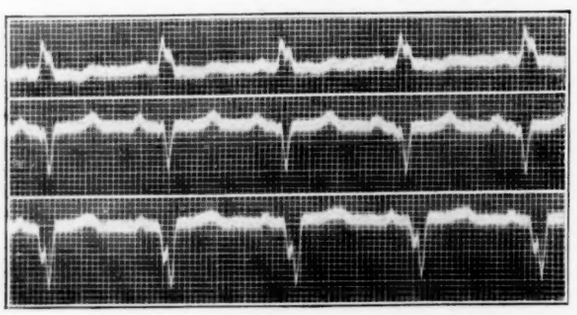

Fig. 84.—Right bundle branch block: Myocardial damage.

only ones definitely known, although aconite, the salicylates, morphine and the excessive use of tobacco have been held responsible. Some hearts, especially those of athletes have a rate of 30 to 40 at rest, but with exercise they have immediately the abrupt development of a fast rate, usually doubled, followed by a gradual increase in the new rate.

PAROXYSMAL TACHYCARDIA

In paroxysmal tachycardia the patient becomes aware of a sudden great increase in the heart rate. Such a paroxysm may persist for hours or even days. The attacks may recur frequently for weeks, months or years. Individuals without demonstrable cardiac pathologic changes are just as liable to these paroxysms as

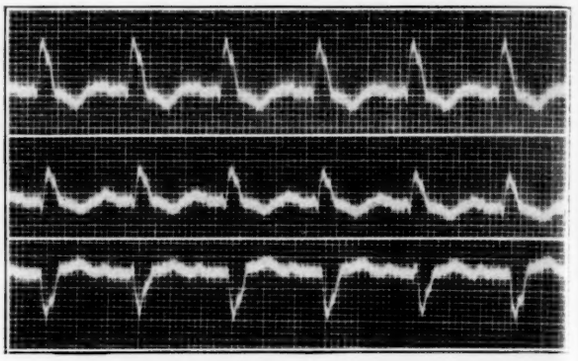

Fig. 85.—Right bundle branch block: Myocardial damage.

are the victims of heart disease. The young are more often affected than are the old. The attack terminates just as suddenly as it arises, and in most instances, causes no disturbance other than distress and palpitation. In cases of long duration, however, mild symptoms of heart failure supervene. There are even a few recorded deaths. Pressure on the vagi in the neck, especially the right vagus, often terminates an attack by stimulation of the inhibitory function of this nerve, as sometimes does pressure on the supra-orbital

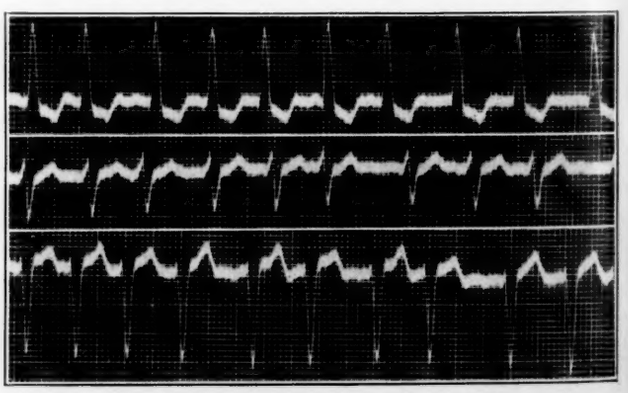

Fig. 86.—Incomplete right bundle branch block: Auricular fibrillation, absolute irregularity of rhythm, P waves absent. Myocardial damage, $Q\text{-}R\text{-}S_{1, 2, 3}$ slurred and prolonged, $Q\text{-}R\text{-}S_2$ diphasic, $Q\text{-}R\text{-}S_3$ negative. S T_1 depressed. S T_3 elevated. T_1 negative. Rate, 130 per minute.

nerve, deep breathing, holding the breath, vomiting, swallowing a hard bolus of food, or the assumption of various postures. Quinidine is sometimes effective in controlling the paroxysms, whereas failure usually results from the use of digitalis. The attacks are characterized by a sudden onset of an extremely rapid regular rhythm, which is of variable duration and usually of abrupt termination. The rate is unaffected by rest or exertion, atropine or digitalis. Vagal pressure or other influential factors either cause cessation

of the attack or have no influence at all; they do not slow the rate. The impulse here is of ectopic origin; it may originate in the auricles, ventricles or junctional tissues. The complexes and those of a series of premature contractions are identical in appearance.

monly seen in coronary disease and is always significant. It is rarely seen without evidence of serious organic heart disease. It is sudden in onset and termination, the paroxysms lasting from seconds to days. Its rate varies from 120 to 240 per minute but is usually about

Fig. 87.—Left bundle branch block: Note that the main Q-R-S deflection is down in lead 1 and that the T wave is of opposite direction to the chief deflection of the Q-R-S complex in the leads of largest excursion. Auricular fibrillation is present, the P waves being absent and the rhythm totally irregular. The f waves are obscured by somatic muscle tremor.

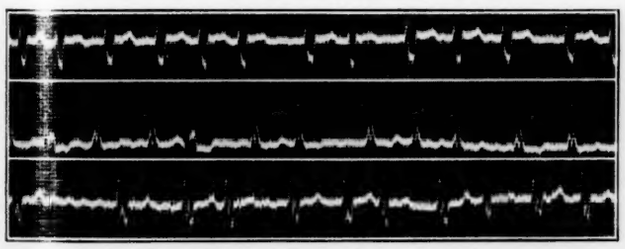

Fig. 88.—Left bundle branch block: Auricular fibrillation. Myocardial damage. Rate, 120 per minute.

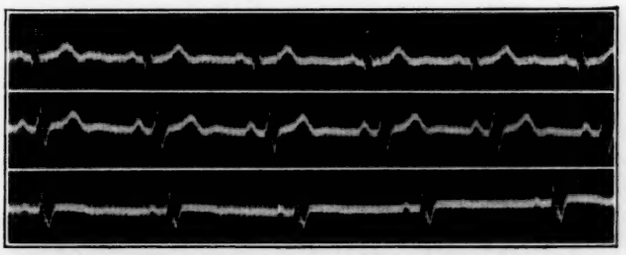

Fig. 90.—This electrocardiogram might be considered an arborization block if T_1 were negative (opposite to the chief deflection of Q-R-S_1), but it is better to consider that it reveals prolonged intraventricular conduction (Q-R-S interval, 0.11-0.12 second) and myocardial damage as evidenced by Q-R-S_1 slurred and Q-R-$S_{2,3}$ notched.

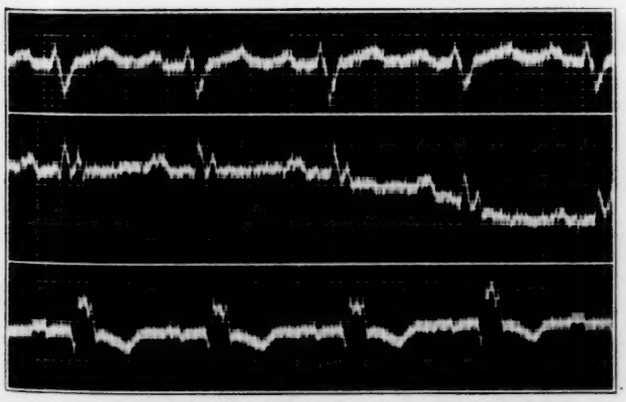

Fig. 89.—Arborization block: Note the low voltage of deflections in all leads and that the Q-R-S complex is markedly notched. Note also that T_1 is of opposite direction to the chief deflection of Q-R-S_1.

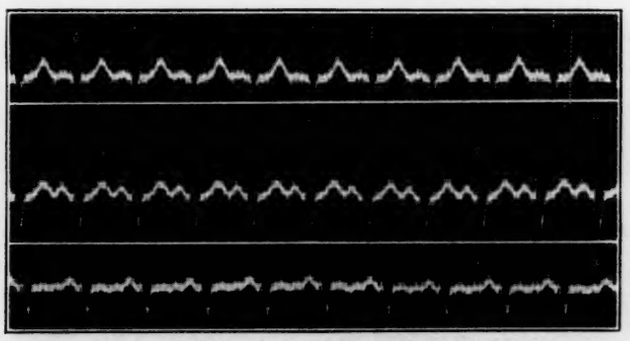

Fig. 91.—Sinus (simple) tachycardia. Rate, 160 per minute. Note that all waves, complexes and intervals are normal, there being merely an increase in rate evident.

PAROXYSMAL VENTRICULAR TACHYCARDIA

Paroxysmal ventricular tachycardia is, as a rule, a serious clinical disorder. Fortunately it is rare, occurs as a result of occlusion of a coronary (left usually) artery and from toxic effects of digitalis, is most com-

160 to 180 per minute. It is not, as a rule, absolutely regular, the arrhythmia being evident in the electrocardiogram but not always clinically.

The Q-R-S complexes are indistinguishable from those characteristic of ventricular extrasystoles. They

are usually of high amplitude and follow each other in rapid succession, with or without retrograde auricular response. The general contour of the Q-R-S waves may vary considerably from point to point in the record. If the auricular rhythm is undisturbed, the curious regular alternation of amplitude or direction, and sometimes also of time intervals, due apparently to a variation in the spread of the excitation wave with alternate beats. This is rare but very serious. The mechanism of paroxysmal ventricular tachycardia is

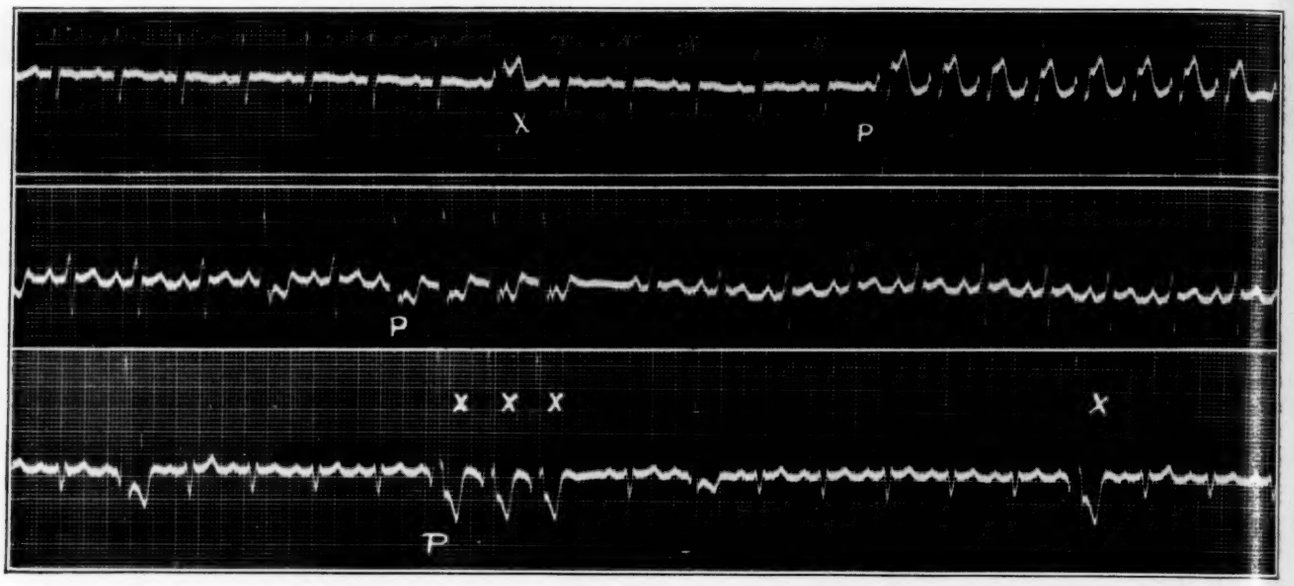

Fig. 92.—Paroxysmal ventricular tachycardia. Right ventricular extrasystoles at *x*. Short paroxysms *P* of ventricular tachycardia are seen, three, four and nine abnormal beats occurring in leads 3, 2 and 1, respectively. The first and last cycle of the paroxysm is seen in lead 1. This is the more common type of paroxysmal ventricular tachycardia.

normal or slightly elevated P waves may be seen superimposed regularly on the Q-R-S or T waves at constantly varying points, unless there happens to be a simple 2 to 1 or 3 to 1 ratio present, as, for example,

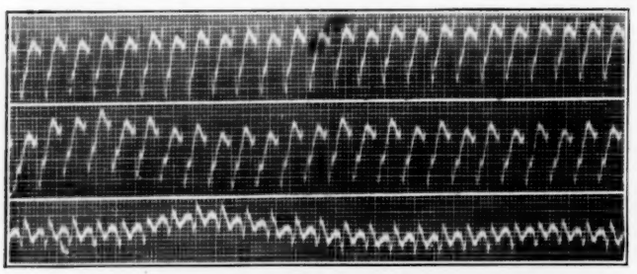

Fig. 93.—Paroxysmal ventricular tachycardia: Rate, 250 per minute. Note that the record has the appearance of a rapidly recurring series of ventricular extrasystoles.

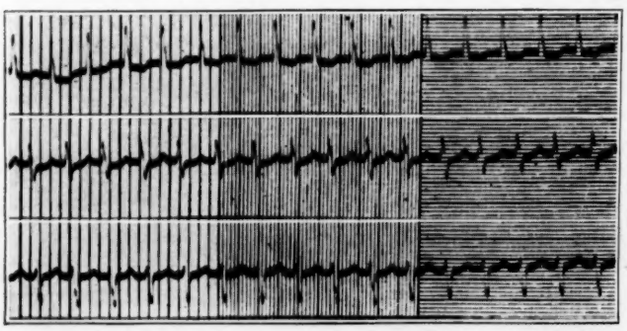

Fig. 94.—Auricular tachycardia: Note the P wave before each Q-R-S complex. Rate, 170 per minute.

with an auricular rate of 80 and a ventricular rate of 160 per minute.

Retrograde conduction occurs. Here the P wave follows the Q-R-S wave. Occasionally there may be a not known. It may be associated with auricular fibrillation or flutter (figs. 92, 93, 134 and 138).

PAROXYSMAL AURICULAR TACHYCARDIA

Paroxysmal auricular tachycardia is a continuous abnormal auricular rhythm, which may be likened to a rapid continuous series of auricular extrasystoles. The impulses originate from an ectopic focus in the auricular muscle, away from the S-A node, and recur regularly and rapidly at a rate of 120 to 220 per

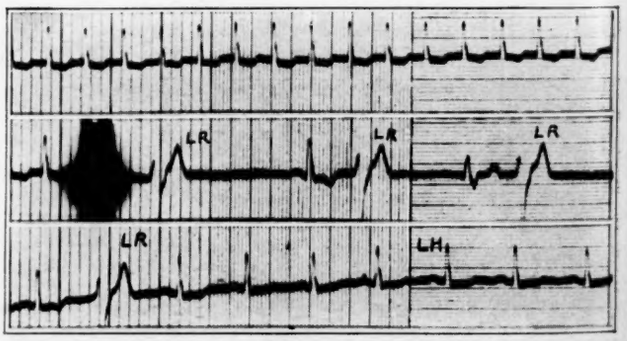

Fig. 95.—Auricular tachycardia: Same case as in figure 94, showing effect of vagal pressure in restoring normal rhythm. Only lead 1 was used. Rate, 170 per minute. Just after application of pressure, ventricular extrasystoles (*L R*) occur. Immediately after the last one the rhythm is practically normal and becomes (at *L H*) a normal sinus mechanism, at a rate of 90 per minute.

minute. The ending of a paroxysm is usually as abrupt as is the onset, only rarely being of a gradual type. Attacks last from a few seconds to two weeks. Prognosis is here more favorable than in the ventricular form. The P wave is always followed by a Q-R-S complex, except in rare cases in which intraventricular block or two to one A-V block is associated. The P wave is negative, diphasic, or notched if upright, owing

to its ectopic origin. The Q-R-S and T waves usually have physiologic outlines. Being of supraventricular origin, the electrical wave of excitation usually follows the normal pathways (figs. 94, 95, 98, 99 and 133).

PAROXYSMAL A-V NODAL TACHYCARDIA

Paroxysmal A-V nodal tachycardia is due to an excessive irritability of the junctional tissues. The ectopic focus is in the A-V node. Clinically the condition resembles paroxysmal auricular tachycardia, but electrocardiographically it resembles A-V nodal rhythm, except for the fast rate.

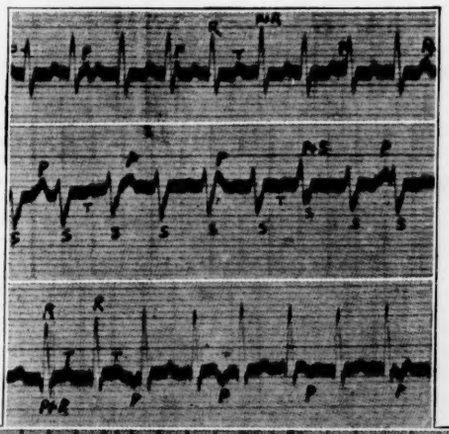

Fig. 96.—Nodal tachycardia: *A*, tachycardia of A-V nodal origin combined with complete A-V dissociation. Auricular rate, 103 per minute; ventricular rate, 180 per minute. *B*, tachycardia of A-V nodal origin, but having a rate slightly faster than the auricles. Auricular rate, 84 per minute; ventricular rate, 90 per minute. For three heart cycles in the center of the record the auricular beat is followed by a venticular beat in the normal manner, proving that the A-V conduction is not disturbed. The next ventricular beat follows P at a shorter interval and probably originates from the A-V node, as do the ones that follow. Note the aberrant ventricular complexes of the nodal rhythm. They have no S wave, and the T wave is not so high. This condition has been erroneously described as escape. From "Clinical Aspects of the Electrocardiogram," by Harold E. B. Pardee. Courtesy Paul B. Hoeber, Inc., New York.

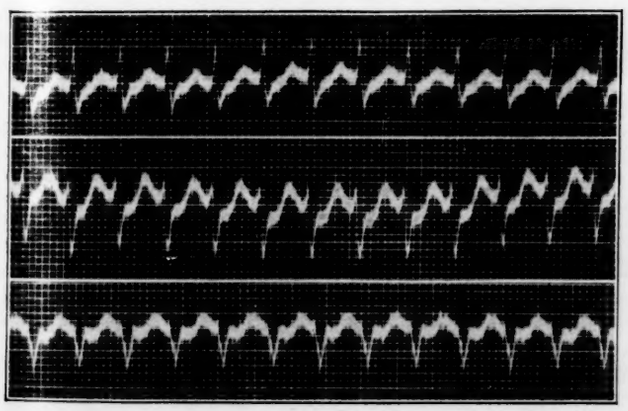

Fig. 97.—Paroxysmal nodal tachycardia: Rate, 230 per minute. Note that there are no P waves to be seen, and the Q-R-S complex is of normal duration and does not vary in form markedly from the normal.

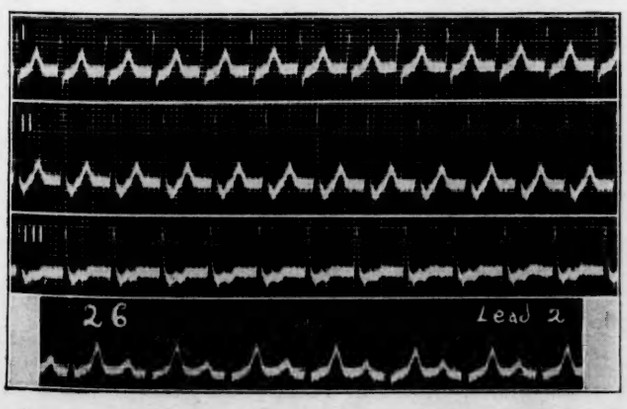

Fig. 98.—Paroxysmal auricular tachycardia: Rate, 170 per minute. Note the P waves in the S-T intervals, most marked in leads 2 and 3; also the abnormally sharp rise of T_2 as the result of the influence of the superimposed P wave. Compare this with figure 97. Record 2*b*, lead 2, was taken immediately after application of bilateral supra-orbital pressure and reveals a normal sinus mechanism at a rate of 110 per minute.

It differs from the auricular and ventricular types of paroxysmal tachycardia by the finding of a normally shaped Q-R-S complex follower or, rarely, just preceded by an inverted P wave, as the first beat at the onset of the paroxysm. Nodal and auricular tachycardia may coexist. It may or may not be associated with demonstrable organic heart disease. The prognosis of the condition depends on the degree of the associated cardiac changes.

As in nodal premature contractions, there are three types:

The P-R interval may be reduced, the impulse coming from the upper part of the A-V node.

The P wave may be absent, being buried in the Q-R-S complex. It may increase the amplitude of the Q-R-S complex. An impulse from an ectopic focus located in the central portion of the A-V node causes the auricles and ventricles to contract synchronously.

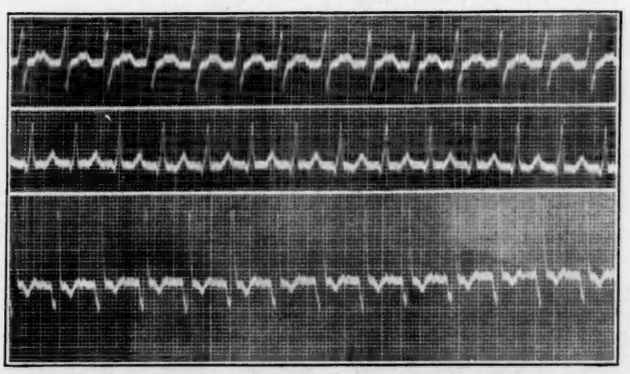

Fig. 99.—Paroxysmal auricular tachycardia, which was considered to be a nodal type at first: Note that P waves are present and are fused with the T waves. Note the abnormally sharp rise of T_2, due to this superimposition of P_2. Rate, 130 per minute. Some of the complexes indicate a disturbance in intraventricular conduction.

The P wave may occur just after the R wave; it is invariably inverted. Here the focus is in the lower portion of the A-V node, and therefore the contraction of the ventricles precedes that of the auricles (figs. 96 and 97).

(To be continued)

The Obstetrician.—Curiously enough, though woman has held the practice of obstetrics in her hand for ages while the obstetrician is practically a product of the twentieth and of the last half of the nineteenth centuries, the advances in obstetrics are largely due to man.—Mengert, W. F.: The Origin of the Male Midwife, *Ann. M. Hist.* **4**:454 (Sept.) 1932.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

P. N. LEECH, Acting Secretary.

BILIPOSOL.—A complex compound of high molecular weight, the chemical structure of which has not been established, combining bismuth and α-carboxethyl-β-methyl nonoic acid. It contains about 45 per cent of bismuth.

Actions and Uses.—Biliposol is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (see Bismuth Compounds, New and Nonofficial Remedies, 1932, p. 100). Biliposol belongs to the class of fat-soluble bismuth compounds which, because of their solubility, are absorbed with more rapidity than insoluble bismuth salts, approaching that of soluble bismuth salts, and which are not likely to cause abscess formation.

Dosage.—For the average adult, doses of 2 cc. of biliposol solution (representing 0.04 Gm. of bismuth per cubic centimeter) are administered intramuscularly, in a series of twelve injections; three injections the first week and two injections per week thereafter; treatment is discontinued for one month and then resumed by repeating the series of twelve injections. For infants and children the dosage ranges from 0.1 cc. to 0.6 cc. twice weekly.

Manufactured by Laboratoires Français de Chimiotherapie, Paris, France (Ulmer Laboratories, Minneapolis, distributor). U. S. patent applied for. U. S. trademark 269,486.

Ampoules Biliposol Solution, 2 cc.: A solution of biliposol in olive oil, containing 2 per cent of benzyl alcohol, 1.5 per cent of ethyl aminobenzoate, and 1.5 per cent of butyl aminobenzate per cubic centimeter. Each cubic centimeter of biliposol solution contains biliposol equivalent to 0.04 Gm. of bismuth (Bi).

Biliposol occurs as a rather hard, stiff, unctuous, white or slightly yellowish mass having an odor; readily soluble in most organic solvents, including benzene, chloroform, ether, purified petroleum benzin and animal and vegetable oils. It softens when warmed. When subjected to very gentle ignition, it swells, setting free white fumes, and the mass darkens.

Warm about 1 Gm. of biliposol with a slight excess of alcoholic potassium hydroxide, filter the insoluble portion and ignite in a quartz dish: the residue is yellow. Evaporate the alcoholic filtrate: a yellowish residue remains; dissolve in 15 cc. of water and divide into three 5 cc. portions. Add 2 cc. of copper sulphate to 5 cc. of the solution, filter, wash with 5 cc. of water and dry: the residue is soluble in benzene. Add 2 cc. of nickel chloride to another 5 cc. portion of the solution, filter, wash with 5 cc. of water and dry: the residue is soluble in benzene. Add 2 cc. of cobalt nitrate to another 5 cc. portion of the solution, filter, wash with 5 cc. of water and dry: the residue is soluble in benzene.

Ignite 2.8 Gm. of biliposol in a quartz crucible, cool, add cautiously drop by drop just sufficient nitric acid to dissolve the residue when it is warmed; pour the acid solution into 100 cc. of water, evaporate the filtrate on the water bath to 30 cc., again filter and divide the filtrate into 5 cc. portions; to one portion add an equal volume of diluted sulphuric acid: the liquid does not become cloudy (*lead*). To another portion add an excess of ammonia water: the supernatant liquid does not exhibit a bluish tint (*copper*). To another portion add diluted hydrochloric acid: a precipitate, insoluble in an excess of hydrochloric acid and soluble in ammonia water, is not formed (*silver*). Ignite 1 Gm. of biliposol in a quartz crucible: the residue meets the requirements of Bettendorf's test, U. S. P. X, p. 430 (*arsenic*). Transfer 0.2 Gm. to a separatory funnel, dissolve in 15 cc. of ether, extract with two 10 cc. portions of diluted nitric acid, add 1 cc. of barium chloride solution and sufficient water to make the volume 50 cc.: after ten minutes there is no more turbidity than in a control tube containing the reagents used and 0.5 cc. of fiftieth normal sulphuric acid. Add 1 cc. of silver nitrate solution to the remaining 10 cc. portion and then add sufficient water to make the volume 50 cc.: after five minutes there is no more turbidity than in a control tube using the reagents and 0.5 cc. of fiftieth normal hydrochloric acid.

Dissolve about 0.35 Gm. of biliposol, accurately weighed, in 25 cc. of chloroform, extract with one 20 cc. portion and two 10 cc. portions of diluted hydrochloric acid (one volume of "diluted hydrochloric acid-U. S. P." to one volume of distilled water), add filtered ammonia water a little at a time and with stirring until the precipitate that forms just dissolves. Saturate with hydrogen sulphide, filter, wash successively with water, alcohol, chloroform and ether, dry at 100 C., cool in a desiccator, weigh: the bismuth sulphide weighed is equivalent to not less than 44.4 per cent nor more than 46.0 per cent of bismuth. Evaporate the chloroform solution to dryness on the steam bath and then dry to constant weight over calcium chloride: the weight calculated to α-carboxethyl-β-methyl nonoic acid ion (multiply by 0.9958) is not less than 48 per cent nor more than 52 per cent. Add an excess of tenth-normal sodium hydroxide solution and titrate back with tenth-normal hydrochloric acid using phenolphthalein as an indicator, calculate to α-carboxethyl-β-methyl nonoic acid ion (multiply the number of cubic centimeters of tenth-normal sodium hydroxide used by 0.024318): the weight of acid ion is not less than 51 per cent nor more than 54.5 per cent (limit of dibasic acids). Add an excess of sulphuric acid to the filtrate, evaporate and ignite in a weighed platinum dish: the weight of the residue, if any, should not exceed 0.5 per cent (*alkali and alkaline earth metals*).

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

DAVIS OK BAKING POWDER

Manufacturer.—R. B. Davis Company, Hoboken, N. J.

Description.—A baking powder containing sodium bicarbonate, monocalcium acid phosphate, sodium aluminum sulphate, corn starch, and a small quantity of dried white of egg.

Manufacture.—The ingredients in definite proportions are thoroughly mixed in a mechanical mixer. Before each batch is delivered to automatic packing machines it is tested by the laboratory for total carbon dioxide and the neutrality of the residue formed after liberation of the leavening gas, carbon dioxide. Other laboratory tests are used to insure the correctness of the mix and the standardization of the finished product.

To safeguard the purity and uniformity of the finished product, the ingredients, before use, are subjected to exacting laboratory examination; they must comply with food law requirements, contain a minimum moisture content to insure the keeping quality of the final product, and be of definite granulation to produce proper leavening action and stability of the baking powder.

Analysis (submitted by manufacturer).—

	per cent
Total carbon dioxide (CO_2)	14.1
Residual CO_2	0.7
Available CO_2	13.4
Phosphorus (P_2O_5)	10.0
Phosphorus (P)	2.18
Aluminum (Al_2O_3)	2.8
Aluminum (Al)	1.48
Egg albumin	0.2
Corn starch	41.2

Calories.—1.7 per gram; 48 per ounce.

Claims of Manufacturer.—Davis OK Baking Powder is for use in all baking and cooking recipes calling for baking powder. The product and ingredients conform to United States Department of Agriculture requirements as expressed in its definition and standard for baking powder. The two acid reacting ingredients for liberation of the leavening gas, because of their different solubilities, produce a "double leavening action" in the dough. The first action releases a portion of the leavening gas in the cold dough, the second releases the remaining gas in the heated dough in the oven.

MOTHER'S BREAD

Manufacturer.—Roanoke Sunlight Bakery, Inc., Roanoke, Va.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from flour, water, evaporated milk, sucrose, malt syrup, hydrolyzed starch, yeast, salt, potato flour, shortening and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer).—

	per cent
Moisture	36.7
Ash	1.9
Fat	2.2
Protein ($N \times 6.25$)	9.7
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	49.1

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—Conforms to United States Department of Agriculture definition and standard for white bread.

CEDAR HILL BRAND TOMATO JUICE

Manufacturer.—American Packing Corporation, Evansville, Ind.

Distributor.—Hassendeubel Grocery Company, St. Louis.

Description.—The same product as Loudon Brand Tomato Juice (THE JOURNAL, June 25, 1932, p. 2289).

PHYSICIANS SPECIALIZING IN PATHOLOGY

REPORT BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

In 1924, the Council on Medical Education and Hospitals began the survey of clinical laboratories. This work was referred to the Council by the House of Delegates. The survey was first confined to commercial laboratories that did clinical laboratory work for physicians; this was deemed advisable as an initial method of ascertaining how best the clinical laboratory situation could be regulated. With the assistance of a committee of pathologists including members of the American Society of Clinical Pathologists and the American Association of Pathologists and Bacteriologists, the Council accumulated substantial information with regard to the clinical laboratories then in existence.

After seven years of experience, the Council has decided to shift the emphasis of the recognition from the laboratory as a commercial project to the director of the laboratory as an individual. In this way, many more medical practitioners become eligible for recognition, including those who are employed in hospital, research or governmental laboratories.

The request for assistance in the regulation of clinical laboratories came from the clinical pathologists and pathologists themselves in 1923. The two societies mentioned had been working independently toward some solution of the problem. A regulation to stamp out incompetent lay specialists was urged, and even legislation was suggested. It is doubtful that legislation would be desirable. In theory, it should be illegal for any person not qualified to assume the responsibility of making a diagnosis or deciding on the progress or source of a disease. In instances in which the law does not restrict diagnosis or the interpretation of laboratory examinations to qualified medical practitioners, every other force should be mustered to protect the patient against incompetency of the lay directed, nonmedical clinical laboratory.

In 1931, the listing of clinical laboratories was discontinued and the recognition of pathologists and clinical pathologists on the basis of their education, training and experience was inaugurated. A maximum number of 183 commercial clinical laboratories was recognized by the Council during those seven years. Although the lists of qualified pathologists are not yet complete, 538 pathologists have already been passed on by the advisory committee and the Council. Further applications for this recognition are being considered regularly and the lists will be maintained as a permanent part of the Council's work. Thus, the clinical laboratories now recognized by the Council are those which are under the direction of the pathologists or clinical pathologists listed.

Physicians were themselves responsible in some measure for the inroads made on the profession by lay specialists in clinical laboratory work. Many physicians patronized lay laboratories because they did not appreciate fully the importance of competent medical supervision over this work, others because it was cheaper, and possibly a few for the sake of the rebates which were forthcoming. The work of the special societies and the Council doubtless has been responsible to some extent for the apparent decrease in the use of clinical laboratories not under the supervision of qualified pathologists. The extent of the progress made is in proportion to the cooperation extended by the profession.

In order that the patient may benefit from the most accurate analyses with regard to the progress and source of disease, physicians should have their work carried out in laboratories under the supervision of capable pathologists.

The list that is presented in the following pages represents a forward movement in the regulation and control of clinical laboratories. More than ever have medical men come to realize that the services of the clinical pathologist are to be considered on the same basis as those of any other special consultant.

At the request of the Section on Radiology in 1928, the Council is carrying on a similar service relating to radiologists, of whom 1,170 have been admitted to the Council's list.

METHOD OF PREPARING THE LIST

The method of preparing the list of physicians specializing in pathology is as follows:

1. Physicians desiring to appear in this list, on application to the Council, will receive a form on which to submit a statement regarding their training and experience.

2. The data submitted on the questionnaires by the specialists are verified by comparison with the biographic files of the American Medical Association. The education of the physician is verified by the official reports of his medical college of graduation and by other institutions from which official reports are received. The official reports received from state boards are consulted as to his licensure. Membership in various special societies also is looked up.

3. The questionnaires are then reviewed in the office of the Council and those which are, by their own statements, clearly outside the scope of the survey are eliminated. Copies of the lists of applicants are then made and sent to the members of the advisory committee. This advisory body numbers about 106 specialists who were selected from among the pathologists that are best qualified to act in that capacity.

4. Advice regarding the eligibility of candidates is obtained from individual members of the advisory committee and each is asked to submit his opinion or recommendation independently of others. Recommendations regarding each candidate are, as a rule, secured from several advisers, averaging from three to six. These are then taken up by the Council on Medical Education and Hospitals at the following quarterly meeting of the Council.

The place of the Council on Medical Education and Hospitals in this work is that of an impartial, fact-finding, classifying body. The Council was assigned this undertaking because of similar work which it has performed. The expense of this work is borne entirely from funds voted to the Council by the American Medical Association. The only object, therefore, is the substantial and gradual betterment of pathologic service.

PREVIOUS ARTICLES RELATING TO THE LIST OF PATHOLOGISTS

The development and evolution of the list of qualified pathologists may be traced by reference to articles that have appeared in THE JOURNAL during the past few years.

The initial steps, beginning with the authorization of the movement by the House of Delegates of the American Medical Association at the annual session in San Francisco in 1923, are given in THE JOURNAL, April 3, 1926. That article contains the names of the members of the joint committee and gives a detailed account of the work of the committee and the Council on Medical Education and Hospitals during the years 1923, 1924 and 1925. It contains a copy of the original questionnaire and the compilation of statistics on clinical laboratories gathered from all states of the union by means of that questionnaire. Of special importance are the principles stated by the joint committee at that time—important because most of them still hold good, yet some of them would hardly be regarded as pertinent at the present time. The first provisional list was published in the report just referred to. Subsequent developments in the evolution of the list, and particularly the changes in the list itself, are reflected in the following references:

The second publication of the list appeared in THE JOURNAL, March 12, 1927, and contained 145 names; the list was next published in the Tenth Edition of the American Medical Directory in May, 1927, and contained 145 names; in THE JOURNAL, March 24, 1928, 160 names; March 30, 1929, 174 names; in the Eleventh Edition of the American Medical Directory, July, 1929, 175 names; in THE JOURNAL, March 29, 1930, 178 names; May 23, 1931, 183 names, and in the Twelfth Edition of the American Medical Directory, June, 1931, 183 names.

The foregoing list in this issue contains 538 names.

ESSENTIALS FOR THE LISTING OF PHYSICIANS SPECIALIZING IN CLINICAL LABORATORY WORK AND PATHOLOGY

Admission to the list is open to all physician-pathologists engaged in clinical pathologic work in accordance with the "Essentials," whether connected with a hospital or conducting an independent clinical laboratory. The work of surveying and compiling a list of qualified clinical pathologists according to these "Essentials" is done by the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

Definition.—A physician holding himself out as a clinical pathologist or pathologist may be defined as follows: One who is a graduate in medicine having specialized in clinical pathology, bacteriology, pathology, chemistry, or other allied subjects for at least three years subsequent to graduation, who is in good standing and has been duly licensed to practice medicine.

Qualifications.—(*a*) The pathologist or clinical laboratory director shall be on a full or part time basis with a laboratory for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body. He should devote the major part of his time to work in this field.

(*b*) Clinical pathology should be practiced on the same scientific and ethical basis, whether in the hospital or in a detached laboratory. The work represents the practice of medicine as in other specialties.

The pathologist may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years subsequent to graduation from medical college, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports.

(*c*) Assistants: The clinical laboratory director or pathologist may have a corps of qualified assistants and technicians, responsible to him, and for whom he is responsible, to carry out promptly, intelligently and accurately the several kinds of service the laboratory offers. All their reports, not only of tissues but also of all bacteriologic, hematologic, biochemical, serologic and pathologic data, should be made to the pathologist.

Scope.—A general clinical laboratory should be prepared to render the following services:

(*a*) Hematologic: Blood counts, blood groupings and coagulation tests, and tests for blood parasites in general.

(*b*) Biochemical: Qualitative and quantitative analyses of urine, blood, gastric contents, body fluids, feces, intestinal contents and cerebrospinal fluids; renal and hepatic function tests and basal metabolism.

(*c*) Bacteriologic: Bacteriologic diagnoses; preparation of vaccines and blood and body fluid cultures.

(*d*) Serologic: Serologic diagnoses; agglutination, complement fixation, or precipitin and lysis tests.

(*e*) Pathologic: Preparation of paraffin, celloidin or frozen sections, microscopic and gross pathologic specimens and necropsies.

(*f*) Parasitologic: Protozoal and zoological diagnoses.

(*g*) Metabolic: Disorders of metabolism.

(*h*) Cardiologic: Disorders of the heart.

It is of course not expected that the candidate shall be prepared to render all the services mentioned, since the work must necessarily be diversified in larger laboratories and in smaller laboratories where it would not be practical to have equipment and setups that would be used only occasionally. Since many pathologists limit their work to one branch of the specialty, referring certain items, far more efficiency is to be expected.

Reports.—Reports should be made through the clinical laboratory director or through the pathologist in the department. Reports shall be made solely to the physician in charge of the patient and should be signed by the pathologist. All blanks for reports and other documents should have the name of the director printed on them and, if of a diagnostic or prognostic character, the name of the staff physician also.

Records.—Full records of all examinations made by the pathologist, suitably indexed and filed, are essential. Every specimen analyzed in the laboratory should be given a serial number, which should follow that specimen in the records and reports. When the laboratory report concerns a hospital patient, an exact transcript of the laboratory record should be appended to the hospital case record. Each specimen submitted to the laboratory should be accompanied by pertinent clinical data.

Library.—The laboratory should be provided with, or have convenient access to, a library including current scientific books and journals on all the various subjects required in its work.

Fees.—There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group.

Publicity.—Publicity should be in professional good taste and be limited to statements of fact, as the name, address and telephone number of the laboratory; names and titles of the director and other active responsible personnel; fields of work covered; office hours; directions for sending specimens, and the like, and should not contain misleading statements or claims of unusual superiority. It should not advocate medical fads nor lay undue stress on the importance of laboratory observations.

Only the names of those rendering regular service to the laboratory should appear on letterheads, or any other form of publicity, as being connected with the laboratory.

Advertising matter should be directed only to physicians either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets, telephone lists or other means.

PHYSICIANS SPECIALIZING IN PATHOLOGY

The following list contains the names of 538 physicians specializing in pathology, laboratory diagnosis or clinical pathology, who returned the questionnaire, who were found to meet the "Essentials" and were recommended by the Council's advisers. Those engaged in teaching, research and other activities are admitted, as well as those in active practice.

ALABAMA

NAME	ADDRESS
Birmingham	
Graham, Geo. S.	1023 S. 20th St.
Fairfield	
Jones, Walter C.	Tennessee Coal, Iron and Railroad Hospital
Montgomery	
Trumper, Abraham	201 Montgomery St.

ARIZONA

Phoenix	
Mills, H. P.	15 E. Monroe St.
Tucson	
Halinan, Edward Leo	1826 E. Adams St.
Whipple	
Carhart, William G.	Veterans Administration Hospital

ARKANSAS

Hot Springs	
Lee, Dee C.	236 Central Ave.
Little Rock	
Hoge, S. F.	215 E. 6th St.
Thatcher, Harvey S.	300 W. Markham St.
Pine Bluff	
Pittman, Wm. G.	202 Pine St.

CALIFORNIA

Berkeley	
Reich, Wm. W.	2490 Channing Way
Hollywood	
Andrews, Vernon L.	1322 N. Vermont Ave.
Loma Linda	
Cutler, O. I.	
Long Beach	
Mikels, Benjamin M.	Seaside Hospital
Shackford, B. C.	102 Pine Ave.
Los Angeles	
Bettin, Mona E.	727 W. 7th St.
Bonynge, Chas. W.	1930 Wilshire Blvd.
Brem, Walter V.	523 W. 6th St.
Evans, Newton	1100 Mission Rd.
Hall, Ernest M.	3551 University Ave.
Hammack, Roy W.	523 W. 6th St.
Hill, Robt. B.	511 S. Bonnie Brae
Hyland, Clarence M.	4614 Sunset Blvd.
Kimball, Theodore S.	1100 Mission Rd.
Maner, Geo. D.	523 W. 6th St.
Setzler, Geo. B.	1052 W. 6th St.
Zeller, A. H.	523 W. 6th St.
Oakland	
Glenn, Robt. A.	Samuel Merritt Hospital
Moore, Gertrude	2404 Broadway
Pasadena	
Burrows, Montrose T.	94 N. Madison Ave.
Foord, Alvin G.	749 Fairmont Ave.
Ruediger, Gustav F.	65 N. Madison Ave.
Pomona	
Case, Lucius W.	1798 N. Garey St.
Redlands	
Taltavall, Wm. A.	47 E. Vine St.
Sacramento	
Braafladt, Louis H.	1127, 11th St.
San Diego	
Ball, Howard A.	Front and Dickenson Sts.
Elliott, Frances P.	1028, 32d St.
Pickard, Rawson J.	520 E St.
Sumerlin, Harold S.	2001, 4th Ave.
Thompson, Harold A.	233 A St.
San Francisco	
Bibb, Lewis B.	Letterman General Hospital
Bolin, Zera E.	145 Guerero St.
Lippman, Marion H.	135 Stockton St.
Oliver, Harry R.	490 Post St.
O'Reilly, B. C. N.	870 Market St.
Stowe, W. Parker	St. Luke's Hospital
Victors, Ernst A.	490 Post St.
Wyckoff, Harry A.	2398 Sacramento St.
Santa Ana	
Martell, B. S.	102 W. 4th St.
Santa Monica	
Kosky, Alfred A.	1250, 16th St.
McLean, Wm. J.	958, 24th St.
Stockton	
Holliger, Chas. D.	242 N. Sutter St.

COLORADO

Colorado Springs	
Ryder, Charles T.	1626 Wood Ave.
Staines, M. Ethelyn	23 E. Pikes Peak Ave.
Denver	
Black, William C.	4200 E. 9th Ave.
Carson, Paul C.	Presbyterian Hospital
Dobos, E. I.	1818 Humboldt St.
Freshman, A. W.	227, 16th St.
Gentzkow, C. J.	Fitzsimons General Hospital
Guttman, Paul H.	4200 E. 9th Ave.
Hillkowitz, Philip	227, 16th St.
Jones, Rodney H.	4200 E. 9th Ave.
Mugrage, Edward R.	4200 E. 9th Ave.
Williams, Wm. W.	209, 16th St.
Fort Lyon	
Fulwider, Robert M.	Veterans Administration Hospital
Pueblo	
Dunlop, J. N.	Corwin Hospital
Maynard, C. W.	702 N. Main St.
Woodmen	
Downing, Edgar D.	

CONNECTICUT

Greenwich	
Larimore, L. D.	Greenwich Hospital
Hartford	
Allen, Wilmar M.	20 S. Hudson St.
Hastings, Louis P.	St. Francis Hospital
Kendall, Ralph E.	20 S. Hudson St.
Middletown	
Fisher, Jessie W.	28 Crescent St.
New Britain	
Loud, Norman W.	92 Grand St.
New Haven	
Bartlett, Chas. J.	306 Orchard St.
Norwalk	
Murray, Archibald.	Norwalk General Hospital
Stamford	
Weaver, Bruce S.	77 South St.

DELAWARE

Wilmington	
Bringman, Gladys H.	Wilmington General Hospital

DISTRICT OF COLUMBIA

Washington	
Cajigas, Tomas M.	1801 Eye St., N.W.
Falisi, J. Vincent	Walter Reed General Hospital
Kelly, Robert A.	1801 Eye St., N.W.
Lillie, R. D.	National Institute of Health
Lindsay, Janvier W.	1726 Eye St., N.W.
Matz, Philip B.	Veterans Administration Bureau
Neuman, Lester	1835 Eye St., N.W.
Rice, E. Clarence	1726 Eye St., N.W.
Selinger, Maurice A.	1726 Eye St., N.W.

FLORIDA

Jacksonville	
Dyrenforth, L. Y.	1022 Park St.
Kirk, Wm. W.	208 Laura St.
Royce, Clayton E.	1022 Park St.
Miami	
Youmans, Iva C.	216 N. E. 2d Ave.
Tampa	
Mills, Herbert R.	706 Franklin St.

GEORGIA

Atlanta	
Ayers, A. J.	384 Peachtree St.
Bishop, Everett L.	Steiner Cancer Clinic
Klugh, Geo. F.	139 Forrest Ave., N. E.
Norris, Jack C.	50 Armstrong St.
Augusta	
Pund, Edgar R.	Univ. of Ga., Med. Dept.
Emory University	
Kracke, Roy R.	Wesley Memorial Hospital

ILLINOIS

Bloomington	
Markowitz, Benj.	219 N. Main St.
Chicago	
Arkin, Aaron	25 E. Washington St.
Benjamin, Eustace L.	5916 Kenmore Ave.
Croy, C. Churchill	25 E. Washington
Davidsohn, Israel	2750 W. 15th Pl.
Gardner, Stella M.	30 N. Michigan Ave.
Hennemeyer, R. J.	826 E. 61st St.
Hirsch, Edwin F.	1439 S. Michigan Ave.
Howell, Katharine M.	2839 Ellis Ave.
Jaffe, Richard H.	533 Grant Pl.
Kearns, Jerry Joseph	4458 Madison St.
Levinson, Samuel A.	1817 W. Polk St.
Lewis, Julian H.	5200 Wabash Ave.
Lincoln, Mary C.	30 N. Michigan Ave.
Matthies, M. M.	33 N. Wabash Ave.
Moore, Josiah J.	55 E. Washington St.
Murphy, Leonard J.	4753 Broadway
Nicoll, H. K.	122 S. Michigan Ave.
Petersen, A. S. J.	45-67 W. 111th St.
Petersen, Wm. F.	1817 W. Polk St.
Pilot, Isadore	185 N. Wabash Ave.
Pribram, Ernest	4458 Malden St.
Rukstinat, George J.	Central Ave. and Flournoy St.
Saphir, Otto	2839 Ellis Ave.
Swan, Mary H.	55 E. Washington St.
Sweany, Henry C.	5601 N. Crawford Ave.
Thalhimer, Wm.	2839 Ellis Ave.
Wells, Harry G.	Dept. of Path., Univ. of Chicago
Evanston	
Gunn, Francis D.	2650 Ridge Ave.
Schultz, Oscar T.	355 Ridge Ave.
Moline	
Vollmer, Maud J.	1630 Fifth Ave.
North Chicago	
Schelm, George W.	Veterans Administration Hosp.
Quincy	
Cohen, Frank	529 Hampshire St.
Rockford	
Palmer, Harold D.	507 Chestnut St.
Springfield	
Bain, Walter G.	8th and Mason Sts.

INDIANA

Bluffton	
Nickel, Allen A. C.	Caylor-Nickel Clinic
Evansville	
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SATURDAY, OCTOBER 22, 1932

CLINICAL PATHOLOGY AND MODERN MEDICINE

The partitioning of the practice of medicine into various specialties has been the response of the profession to the demand for men trained in special fields. The introduction into medical practice of laboratory diagnosis with thousands of tests performed on the secretions and excretions of the human body, the development of microscopic and gross methods of examination of diseased tissues removed from the body during life and after death, the use of complex and costly apparatus, such as the x-rays and devices for transillumination for the examination of living diseased tissues, brought about the development of clinical laboratories. These are associated variously with hospitals and state departments of health and, in many instances, conducted as a form of medical specialization by individual, specially trained, practitioners. The pathologist of an earlier day was primarily a physician who examined diseased tissues after death. The pathologist of today is one skilled in studying the nature of disease, including the structural and functional changes caused by disease. Because of the desirability of distinguishing in some manner between the pathologists who devote themselves primarily to teaching and research and those who are concerned wholly with aiding clinicians in the study of living patients, it has become customary to distinguish the latter from the former by calling them clinical pathologists.

In a recent consideration on the subject,[1] Dr. Thomas B. Magath of the Section on Clinical Pathology of the Mayo Clinic, suggests that he is quite willing to include as pathologists any with a medical degree whose subsequent training and practice make them proficient in any medical laboratory specialty. The list of clinical pathologists appearing in this issue of THE JOURNAL includes largely physicians of this type. A few teachers and research workers in the field of pathology have requested that their names be omitted because they do not offer their services generally in this field, although they may serve occasionally as consultants with physicians in hospitals.

As Dr. Magath points out in his discussion, there are today more than 200 periodicals devoted wholly to laboratory medical subjects, and there are few, if any, general medical publications which do not frequently publish papers in this field. It is probable, moreover, that every physician is to a considerable extent a clinical pathologist. The advances that have been made remove pathology definitely from the type of study commonly characterized as classic, indicating that it is practiced wholly by persons secluded from life in hidden places, and bring it directly to the bedside of the sick.

Much time and effort have been expended by organizations of specialists in other fields to set up standards for practitioners who devote themselves exclusively to single phases of medical practice. There are already means of certification of otolaryngologists, ophthalmologists and obstetricians, and examining boards in dermatology and radiology are prospective. There is an organization, devoted wholly to the interests of clinical pathologists, which has designated the arbitrary minimum time of study for qualification in this branch as three years, and the Council on Medical Education and Hospitals has endorsed this standard. Obviously, of course, a physician does not necessarily become an authoritative clinical pathologist in that period of time. Moreover, another factor enters into the field; namely, the close relationship of this form of medical practice with the commercial sale of such services.

When it became apparent that the work of the clinical pathologist might be sold, either in a hospital or in a specially equipped laboratory in an office building, the usual attempt to sell such services primarily as a means of commercial profit developed. Hence, laboratories were established which were owned by groups of business men, by groups of physicians, by individual physicians and even by members of the public to whom stock was sold. Since the interests of many of these laboratories were primarily commercial, it became necessary to set up certain standards for their control if they were to serve the public satisfactorily in this field, which closely affected both health and life. For this reason the Council on Medical Education and Hospitals publishes annually its list of approved clinical laboratories and sets forth its standards of approval. The Council recognizes that the competence of the men who conduct the laboratory and who do the work, rather than the quality or quantity of the equipment, is the factor which makes an acceptable laboratory. Its ratings henceforth are to be made on this basis primarily.

The practice of clinical pathology offers to the physician an unusual opportunity. It keeps him in intimate touch with disease in all its phases. It is a stimulus to medical research. It is scientific and accurate beyond the science of history taking or physical diagnosis. It is one of the most valuable aids to modern medical prac-

1. Magath, T. B.: The Importance of Clinical Pathology to Modern Medicine, Science **76**: 334 (Oct. 14) 1932.

tice. American physicians are fortunate to have the assurance that the practice of clinical pathology is being maintained on a high plane.

NEW FORMS OF MEDICAL PRACTICE—III

The Bureau of Medical Economics of the American Medical Association is continuing to collect data regarding various attempts to change the nature of medical practice. Several reports have already been recorded in the columns of THE JOURNAL. A new account appears in this issue, and others will be published from time to time. In general, all the schemes described seem to have been developed primarily for profit to the promoters rather than with any sincere purpose to render a better type of medical service or to lower the cost of good medical care. Indeed, as has been said previously, most of them attempt to lower the cost of medical care either by exploiting the services of salaried physicians who are willing to sell their medical birthrights for the promoters' mess of pottage or by providing what is essentially an inferior quality of medical service.

The publication of the first of the descriptions of such organizations—United Medical Service, Inc.—brought a most interesting response. Two of the men formerly listed as trustees of the corporation have resigned (this issue, page 1446), owing to their conviction that such practice would not be ethical. A letter from Mr. Michael Davis of the Rosenwald Foundation (this issue, page 1446) expresses his conviction also that the exploitation of such service for profit is for the good neither of the public nor of the medical profession. He says, moreover, that Dr. J. G. Berkowitz, prime mover in the promotion of United Medical Service, Inc., resigned from the Public Health Institute because he was not permitted to change that advertising clinic for venereal disease into a corporation for profit. Can Dr. Berkowitz and the business men who are his associates be more interested in profit than in the integrity of the medical profession? In the words of the immortal Shakespeare plus Patrick Henry, we pause for a reply and, expecting none, proceed. Mr. Davis argues that clinical service may be desirable at the hands of corporations when such groups are organized not for profit and when their purpose is charitable. This introduces, of course, the entire subject of abuse of medical charity. From time immemorial, physicians have rendered service to the poor without counting the cost of such service. There are no doubt available millions of instances in which physicians have actually dipped into their own pockets to correct the economic conditions responsible for the illnesses of poor patients. Instances too numerous to mention have occurred in which a doctor, called to a patient with tuberculosis or pneumonia, and realizing that the essentials necessary for improvement were nutrition and warmth, has himself paid the cost of these necessities. This, however, differs greatly from the problem raised by the establishment of corporations to render medical service to persons of the middle class. Every one admits the desirability of organized and institutional care of the poor. Good physicians know that the type of care given to the poor is scientific but that it is not comparable with the type of medical care available to those who can purchase the best. The vast majority of people are in the middle class. These people have been accustomed to pay private physicians for good medical care. Now it is being argued that these private physicians should be replaced either by state physicians or by corporations. It is argued, moreover, that the private practice of medicine is not able to render medical care satisfactorily for the fees available. There are, of course, many answers to these arguments. The middle class must learn to save for sickness, as it now saves for luxuries and in anticipation of death, and thus be able to pay for modern scientific medical care; the middle class must learn that modern scientific medicine costs more than did primitive medicine, and that it is worth far more. Modern living with its many luxuries and with the fruits of invention costs more than did living a hundred years ago. There is evidence, although all of it has not been made available by the Committee on the Costs of Medical Care, that such corporations as have been formed to render service to the middle class for profit are more costly for the type of service rendered than is the service of the general practitioner. The corporations that have been established not for profit have either laid aside large reserves, through unethical promotion, as in the case of the Public Health Institute, or have been forced to depend constantly on endowment, as in the cases of the Baker Memorial Hospital in Boston and the Cornell Clinic in New York.

Next comes the question as to whether or not university clinics of medicine should expand their resources to take care of the middle class in localities in which schools exist. They cannot, of course, begin to answer the problem for the entire country. Moreover, a school has no right to compete unfairly with its graduates. It should not exploit its full time professors, and the number of beds provided by the school should not exceed the number necessary for teaching purposes.

The final point raised by Mr. Davis concerns the incomes of some 40,000 physicians under present methods of practice. He points out that these men average approximately $2,500 a year net as returns for their work, and he feels that some change in medical practice would put them on a more profitable basis. The argument is made, of course, on the evidence available from the panel system in Great Britain, and from other insurance schemes, since it is generally reported that the incomes of physicians under the panel system have been increased and that those physicians who work under the panel are, therefore, satisfied with the situation. The rewards of medical practice, even for the most efficient physicians, are none too great. However,

it is to be questioned whether this argument is really a valid one. It will require more than such inducements to gain the consent of physicians to any state system of practice. Mr. Davis does not suggest the obvious result that the increase in the income of the lower third of the profession is made possible by detracting from the opportunities of the majority of physicians in private practice. State systems lower the opportunity for physicians to advance, break down initiative, and fail to attract the best men to the medical profession; they have, indeed, a hundred other unfortunate effects on the practice of medicine. Moreover, it has not been shown that any state system provides for most people as good a type of medical practice as is given today to the majority of middle class Americans by private practitioners. We are inclined to believe that this appeal to the 40,000 physicians whose incomes are said to be $2,500 a year will fall on unlistening ears.

ENDEMIC NUTRITIONAL EDEMA

Chronic edema occurred in epidemic form during the World War. This was early described by Schittenhelm and Schlecht [1] and attributed by them to the exceptional nature of the diet under the adverse conditions of nutrition existing at that time. There was a notable lack of protein and fat in the food and a preponderance of vegetables and salt. Several more recent investigations have revealed that edema can be produced in experimental animals by giving similar rations and that both in these and in human subjects the collections of obvious extravascular fluid is accompanied by a decrease in the concentration of serum proteins. A recent account of the occurrence of mild endemic edema with apparently the same general etiology has been given by Youmans [2] in Nashville.

The edema involved the extremities most frequently, though at times also the face and the hands were affected. It appeared most prominent in the spring and early summer and is seen mostly in women. A study of the dietary of a group of these patients indicated not only that the energy intake was far below the calculated requirement but also that the daily protein consumption was low. The concentration of total serum protein was not abnormal, although when partitioned it was found that the level of serum albumin was definitely below the normal range. "In the patients who were followed a sufficient length of time the edema tended to disappear when the protein in the diet was increased and as the serum albumin rose." In the Tennessee patients severe malnutrition, bradycardia, hypotension and subnormal temperature, the characteristic symptoms of severe nutritional edema, were lacking. It appears from the available information that the condition was brought on by long consumption of faulty diets arising from custom and habit rather than from economic necessity. This report emphasizes the many-sided character of the symptom complex edema.

It has been emphasized [3] that physicochemical factors such as diffusion pressure, colloidal osmotic pressure, Donnan equilibrium and hydrostatic pressure may play an important part in the production of edema. The disturbance in the water balance in the patients here discussed was greater in proportion to the change in serum proteins than was the case in the experimental study of Frisch, Mendel and Peters,[4] who observed a marked diminution in serum proteins on low protein diets whether or not edema appeared. The available data on nutritional edema emphasize again the significance of water in physiologic economy and the intricate relationships between it and the activity of the organism.

1. Schittenhelm, A., and Schlecht, H.: Ztschr. f. d. ges. exper. Med. **9**: 1, 40, 1919.
2. Youmans, J. B.: Endemic Edema, J. A. M. A. **99**: 883 (Sept. 10) 1932.
3. McLean, F. C.: Physiol. Rev. **5**: 618 (Oct.) 1925.
4. Frisch, R. A.; Mendel, L. B., and Peters, J. P.: J. Biol. Chem. **84**: 167 (Oct.) 1929.

Current Comment

THE BARE FIGURES IN MORTALITY RATES

The United States Bureau of the Census has just released a provisional summary of the death rates in the registration area of continental United States for the year 1931. This summary shows the lowest mortality rate since the bureau began the annual collection of mortality statistics. The death rate reported was 11.1 per thousand estimated population, which included 96.3 per cent of the total population in the United States. In a few states the mortality rate was remarkably low; in North Dakota, South Dakota, Oklahoma and Wyoming the rate was less than 9, and in eleven states the number of certificates filed indicated a death rate of 10 or less. The report of the bureau of the census is in its entirety a collection of tabulated material, a mass of bare figures only, without analysis or comment as to the probable causes for the low death rates. Comment has already appeared, attempting to trace the low rates to the economic depression. The editorial in THE JOURNAL last week mentioned some of the reasons which account in part at least for low death rates during such times. It is not wise to be too optimistic about the beneficial effects of a business depression on the public health. The immediate effects may be more apparent than real and within the next decade there may be a different story. Sufficient time will then have elapsed for malnutrition, bad housing and delayed medical and surgical care in chronic diseases to show their effects on the official mortality rates. Competent hygienists and sanitarians, viewing the record of the past, suggest that the real effects of the depression on the public health will become apparent about 1940. There should be no relaxation of efforts to maintain at this time adequate nutrition, particularly for the little children of the poor.

Medical Economics

NEW FORMS OF MEDICAL PRACTICE

3. National Hospital Association

GENERAL INFORMATION

The National Hospital Association is a corporation existing under the laws of the state of Oregon. The officers are Dr. Samuel C. Slocum, president; Dr. C. G. Sabin, secretary-treasurer, and C. C. Bechtold, general manager. It was incorporated in 1906. It operates in the states of Oregon, Washington, California and Idaho and is caring for thousands of industrial employees annually. It maintains a capital and surplus of approximately $153,000. It is asserted that in assets it exceeds the combined assets of all companies of its class in the Northwest, and it is stated that its annual business more than doubles that of any other company of its class.

The association's headquarters are on the top floor of the Mohawk Building, Third and Morrison streets, Portland, Ore. Here it maintains a large staff of physicians, surgeons and specialists, a complete drug store with quantities of supplies for first aid in the industrial plants, modern x-ray and clinical laboratories in charge of trained technicians, and one of the largest and most complete physical therapy departments in the Northwest. The association is equipped with oxygen machines for the treatment of pneumonia.

The association likewise maintains complete facilities in all the leading industrial centers of Oregon and Washington, providing first-aid by the nearest available physician, regular care by physicians, surgeons and specialists, including operations, hospital services in the general hospitals, nursing, roentgen and laboratory examinations, dental services, physical therapy and, in fact, any service that is necessary in restoring the sick and injured to an early recovery. Employees are privileged to apply for services in any district in which the association maintains medical representatives. More than 1,700 hospital cases alone were cared for in 1931.

The contract of the National Hospital Association, designated as "Full Coverage Contract," states that the association promises and agrees to bear the expense of medical and surgical services, including the services of specialists, hospital services, medicines and medical and surgical appliances, nursing, dental services, ambulance services, roentgen and clinical laboratory diagnoses, physical therapy and prophylaxis for the employees of stated industries. With certain limitations and exceptions, the benefits of the contract apply to sickness and personal injuries occurring at any time during the calendar month for which payment is made.

The contract provides that the physicians, hospitals and other parties designated by the National Hospital Association shall be acceptable to those who come within the operation of the contract. No information is available, at this time, to indicate the manner in which the physicians, dentists, hospitals, nurses and others necessary for the operation of the plan are chosen or designated.

The exceptions and limitations of the service provided under the "Full Coverage Contract" are as follows: In case of suspected tuberculosis it appears that the association will bear the expense of diagnosis and, when a positive diagnosis has been established, will bear the expense of the services of specialists and sanitarium care *when necessary*. The contract provides that the association shall not be responsible for tuberculosis existing among present employees at the time of or prior to the date of the contract or that found among future employees prior to or within six months after entering the employ of the industry carrying the contract; however, should tuberculosis develop as a result of some acute illness suffered during employment by the said industry the employee shall be entitled to full benefits of the contract. Cancer and chronic conditions are made to conform to regulations as to diagnosis and treatment similar to those just described for tuberculosis. The medical and hospital care for apoplexy and paralysis is limited to four months; the conditions for which the benefits of the contract do not apply are insanity; pregnancy; female disorders; venereal diseases; conditions resulting from the use of intoxicating liquors, narcotics or drugs; pyorrhea; refraction for glasses; correction of deformities and congenital conditions; attempts at suicide, or to any sickness that is active at the time the employee comes under the operation of the contract or to personal injury occurring prior to the date that the contract becomes effective or to personal injury from violence unless such violence be the act of a third person or a third person while under the influence of intoxicating liquors, drugs or narcotics or to cases which come under the benefits of workmen's compensation.

The expense of emergency care will be borne by the association at points at which there are no designated physicians or hospitals, but the patient must, as soon as his condition will permit, apply to the association for the balance of his medical care, and failure to do so shall relieve the association of all further responsibility.

The contract provides that for the services rendered the employer shall pay $2 a month, less the employee's contribution to the State Industrial Accident Commission, for each person employed before the 21st of the calendar month and so long as they are thus employed. For those employed after the 21st, $1 is required for the first month and $2 a month thereafter. For those employed three days or less, 10 cents a day is required.

It is significant that the contract specifically provides that the management, office personnel and cooks and kitchen help are included in the benefits defined in the contract.

COMMENT

Such hospital associations are misnomers. They are not what their name implies, associations of hospitals, but merely business offices organized to secure and to hold contracts for medical and hospital service and to arrange with a limited number of physicians and hospitals to render that service.

This particular "association" has as its president Dr. Samuel C. Slocum, and as its secretary-treasurer Dr. C. G. Sabin, both of whom are members and Fellows of the American Medical Association.

Although the number and distribution of the physicians, dentists, nurses and hospitals which they have designated to render medical and hospital services under their contract are not definitely known, it is reasonable to assume that persons covered by the contracts are not given free choice of physician. It is characteristic of almost all these schemes that those for whom the benefits are designed are placed under compulsion to accept the services offered or to pay for medical, dental or hospital care themselves. This feature is specifically provided for in that part of this association's contract dealing with emergency care.

Contract practice of this type develops many undesirable and dangerous features. If good private medical care can be provided for the low income groups at reasonable rates, not only the individual but also the community benefits by enabling this class to be self-sustaining and self-respecting.

An undesirable feature of such plans lies in the facility with which it is made possible for those with ample means to purchase their own medical service at the price offered to laborers under the contract.

The free clinics in which an occasional person of means secures medical care through misrepresentation are less pernicious than any system by which such persons are invited to renounce financial responsibility continuously.

This "association" is incorporated for profit. The report of the insurance commissioner of the state of Oregon for the year 1931 shows that it made a profit in that year. Such a profit must be derived from vending the services of salaried physicians or of physicians who accept the low fees available under the contracts.

There is no reason why a third party or agency should distribute medical services; particularly as such third party agencies are motivated largely by the profits that can be derived from the marketing of medical services. The ten "hospital associations" in Oregon reported to the insurance commissioner of that state an income of $759,768 and expenditures of $744,559 for 1931.

It is asserted that such associations furnish only the highest type of medical care, but it is evident on investigation that the best type of medical care is not furnished and that it could

not be furnished by such a system for the prices paid. The rates charged by some contract groups are economically unsound, and the nature and amount of medical care are influenced frequently by financial considerations.

It is explicitly stated in the principles of ethics that "solicitation of patients by physicians as individuals, or collectively in groups by whatsoever name these be called, or by institutions or organizations, whether by circulars or advertisements, or by personal communications is unprofessional." Furthermore, "it is equally unprofessional to procure patients by indirection through solicitors or agents of any kind, or by indirect advertisement, or by furnishing or inspiring newspaper or magazine comments concerning cases in which the physician has been or is concerned."

Certain types of contract schemes would not be successful if contract physicians and organizations were obliged to wait until industry sought them out for their particular services. The degree of success which they claim comes, in many instances, from their method of securing business. The business manager, solicitor, capper or adjuster has become one of if not the chief means of securing business. Selling professional services by methods which embody commercial competition, sometimes underbidding and often failing to acquaint the purchaser with all the exceptions and limitations, is both detrimental to the public, to the individual physician and to the standards of the medical profession.

INTERNATIONAL CONFERENCE ON MEDICAL ECONOMICS

Association Professionnelle Internationale des Médecins: Seventh Annual Session

(By a Special Correspondent)

This international association for considering medical economic problems held its seventh annual session in Bern and Geneva from Sept. 14 to 17, 1932. The membership of the association is open to the national medical associations throughout the world, and thirty-two have already affiliated with it. Its work is confined entirely to what may be called medicopolitical and medicosocial business, and during the seven years of its existence it has collected a vast amount of information on important questions of common interest which has never been available before. Every year it meets in a different center and as there is only one representative for each national organization, either the secretary or chief executive of his group, its meetings are more in the nature of a business-like committee meeting than of the usual international conference. The president this year was Dr. Schaeftgen of Luxemburg, a man who is a deep student of medicosociologic affairs and who has gained a more than usually thorough acquaintance with the conditions because of the peculiar geographic position of the Luxemburg profession. This is a small country and its practitioners find themselves going over its borders into both Germany and France, and French and German practitioners come in to attend Luxemburg patients.

Representatives of the following national groups attended: Austria, Belgium, Bulgaria, France, Germany, Great Britain, Holland, Hungary, Luxemburg, Poland, Spain, Sweden and Switzerland. Canada and Norway were represented by deputy. The financial depression, which is hitting some of the groups hard, accounted for the absence of several representatives who had been present at previous sessions.

SWISS MEDICAL ORGANIZATION

The first meeting was held, Wednesday, September 14, at Bern, where the delegates were received by the representatives of the Swiss medical syndicate. An interesting paper was read by Dr. H. Trüen, its general secretary. He described how the Swiss profession had been compelled to set up a special organization for the defense of its economic interests and at their headquarters the delegates saw evidences of a business-like organization. In addition to the usual protection of the interests of the profession against organized bodies, it effects contracts at reduced rates for the supply of drugs and dressings, and it collects a large number of professional debts. Seventy-seven per cent of the profession have their debts collected through the agency of the syndicate. It employs a lawyer and an expert automobile man, who not only advises physicians as to the purchase and insurance of cars, but buys for them at reduced rates such things as pneumatic tires. In fact, the syndicate seems to be well on the way to becoming a universal provider for the medical profession.

On the following day the delegates went to Geneva where they met at the Palais Eynard, kindly lent by the city of Geneva. On this day the proceedings were largely taken up with questions of internal economy, such as how to speed up the answers of correspondents in the various countries to the questionnaires issued by the Association Professionnelle Internationale des Médecins, for, as was pointed out, the information is often twice as useful if it can be obtained quickly. Then, by special invitation, a visit was made to the League of Nations building, where the delegates were shown around by Dr. Gauthier, head of the section of hygiene, who gave a good account of the work of his section. In view of the remarks that are often made about the League of Nations and its staff it was interesting to note that the accommodations are by no means on a luxurious scale. The supply of first-class brains seems to be unlimited, but there is no attempt to pamper the owners with luxurious offices. Dr. Gauthier made it plain that whatever might be said about the general work of the league, there could be no doubt that on the health side it had been and was still accomplishing great things in the way of exchange of information and the sending of experts to various parts of the world to deal with epidemic and endemic diseases.

VENEREAL DISEASE

On Friday, September 16, the delegates discussed the report on the answers to the questionnaire dealing with the organization of the campaign against venereal diseases. The replies showed that in every country in Europe a good deal was being done to combat these diseases but that, as usual, each country had its own methods. Warm feeling was shown on the question of professional secrecy in connection with the notification of these diseases. Everybody was desirous of preserving it as far as possible, but with due regard to the protection of the community. The French representative pressed the case for professional secrecy to its logical conclusion by demanding that the physician should be in exactly the same position as the priest in the confessional. Most of those present, however, took the view that this was going too far and that all the essential demands of the profession could be preserved while such steps were taken as would prevent the infected person from being a danger to the community. Much difference of opinion was shown as to whether the state should offer treatment to all gratuitously, there being a fear that in some countries at any rate such an offer would lead to the swamping of the private practitioner. On the other hand, the representatives of Sweden and Great Britain pointed out that in those countries treatment had been free to all for some years but that the well-to-do did not take advantage of it but went to private practitioners, as they naturally did not like having to go to a clinic where they would meet people who knew them. A vote was taken as to whether treatment ought to be obligatory, with the result that Luxemburg, Sweden, Germany, Hungary, Austria and Spain voted in favor of it, while France, Great Britain, Holland, Bulgaria and Poland were against it on the ground that compulsory treatment would necessarily mean that the physician would be obliged to report his patient to the authorities and that this would be followed by enquiries at the house, with domestic complications which ought to be avoided for the sake of the acceptability of the treatment. Switzerland was neutral, because in that country each canton is a law unto itself and no one can speak for the whole country. A series of resolutions was passed, the general effect of which was that the international campaign against venereal diseases ought to be pursued with even greater vigor and effectiveness than it now is in many countries but that each country must deal with the matter in accordance with its own habits and laws. There was a unanimous resolution in favor of the encouragement of optional medical examination of the contracting parties before marriage. It was agreed that compulsory examination would lead to "free unions" and that this would probably tend to a greater dissemination of the diseases.

EXCHANGE OF CHILDREN OF MEDICAL MEN

The delegates then discussed a proposition that had been raised the previous year; namely, that the Association Professionnelle Internationale des Médecins should set up, or sponsor, some organized exchange of the children of medical men who desire to visit other countries for the purpose of a holiday or for study. The conclusion was reached that it was doubtful whether the Association Professionnelle Internationale des Médecins ought to take the responsibility for such an organization, and it was decided to ask each group whether it would be willing to set up a national bureau for carrying out the movement, if the Association Professionelle Internationale des Médecins could see its way to deal with the matter centrally or could arrange with some other body to do so.

INTERNATIONAL LABOR OFFICE

In the afternoon, a visit was made to the International Labor Office, where the delegates were received by M. Maurette, one of the leading officials, who welcomed them as physicians, as intellectual workers (with the protection of whose interests the International Labor Office is charged) and for their interest in national health insurance, a problem of international scope which is constantly before the International Labor Office. The visit was followed by addresses, first by M. Tixier, one of the chiefs in the insurance section, on "The Rôle of the Doctor in Social Insurance," followed by Dr. Pryll (the medical officer attached to the International Labor Office and who formerly had an important position in connection with the chief national insurance organizations in Germany). Mixed feelings were raised by these addresses, but there was no discussion. Whatever else may be discussed at these conferences, health insurance is like King Charles's head and cannot long be kept in the background.

On Saturday, September 17, the conference had before it a suggestion by the Austrian representative that an attempt should be made to secure special advantages for the medical profession at all health resorts, but the conference felt doubtful as to whether this was a matter which the Association Professionnelle Internationale des Médecins should take up, and it was eventually decided to get further information as to what advantages are already offered, before discussing the matter further.

OVERCROWDING OF THE MEDICAL PROFESSION

The most exciting debate took place on the question of the overcrowding of the medical profession, concerning which a questionnaire had been issued during the year. The figures shown in the report on this subject were truly alarming. In Germany, the number of physicians per thousand inhabitants has nearly doubled since 1900; in Esthonia, Latvia and Bulgaria, the increase is 140 per cent, 177 per cent and 244 per cent, respectively. In most countries it varies between 30 and 60 per cent. Only Cuba and Canada with 0.1 and 0.003 per cent, respectively, have increases less than that in Great Britain, for which the figure is 18 per cent. Cuba will certainly not long maintain her low rate, for by 1930 there had been an increase of no less than 721 per cent in the number of medical students. The average number of inhabitants per physician in Europe is between 1,000 and 2,000. In Great Britain it is 1 to 1,183. In Germany, where, despite the rapid increase there is still only 1 physician to 1,280 people, owing to bad distribution, medical men in large numbers in the big towns are unable to earn a living, and worse is to come, because there are now 20,000 medical students about to join the ranks of the qualified. The position is much more serious in the towns than in the country. In Berlin there is a physician for every 860 inhabitants; in Vienna, 1 to 307; in Brussels, 1 to 600; in Paris, 1 to 630; in London, 1 to 725. Specialists of course figure largely in the cities. Large increases of women medical students were shown, particularly in Austria, Scandinavia and Holland, and everywhere the problem of what is to become of all the present and prospective physicians is actually or potentially alarming.

So far, no remedy seems to have been found. It was said that in some medical schools the authorities, instead of regarding the enormous increase in medical students as a menace to the status and morale of the medical profession, welcome it—probably because the payment of the professors is based on the number of students taught. It would almost appear as if the medical teaching centers are made of some elastic material. It was unanimously agreed that this question was one of most serious importance to which the direct attention of every national group should be drawn. One suggestion made was that there should be a central authority in each country which should estimate for a given number of years (say ten) the number of medical practitioners that could properly be utilized by the country without damage to the existing profession, and that after this calculation had been made each medical school should be informed of the quota which it could be allowed to qualify. No decisions were reached but the question threatens to be as perennial and as serious as health insurance.

NATIONAL HEALTH INSURANCE

The conference then proceeded to discuss a letter from the International Labor Office asking its opinion on three questions concerning national health insurance, and it was decided to send these questions to each group. The representative of Bulgaria reported that, owing to political manipulation of the insurance system in that country, free choice of physician had been lost, and it was resolved to report the matter with a protest to the International Labor Office, to inform Bulgaria of the experience of Germany and France in similar recent struggles and to offer any help that could be given by the Association Professionnelle Internationale des Médecins.

Then followed a discussion on a report on medical inspection and the treatment of school children. This showed that practically everywhere in Europe there was a growing organization for the detection of disease and defect among school children followed up by the insistence on treatment. The report showed the usual differences in efficiency of the various organizations and the usual differences of methods of dealing with the various problems. But it also showed, as indeed all these reports do, that the professional problems in all countries have much in common.

It was decided that during the coming year the answers to the report on medical patents or patenting in the medical field should be completed and that there should be a questionnaire on dichotomy or fee-splitting, with two or three minor questionnaires on certain points already mentioned.

The next conference was fixed for London on the invitation of the British Medical Association, beginning on Sept. 7, 1933; Dr. Alfred Cox was nominated as president of the session.

In addition to the ordinary business of the conference a speech was given by Dr. Roorda of Haarlem, speaking on behalf of the "Committee for Prophylaxis Against War" of the Dutch Medical Association. This is a new body which believes that the medical profession has a special mission in regard to the fight against war, using the parallel of the Red Cross. Dr. Roorda said that just as the profession had to expend a great deal of energy in dealing with the results of war, it was its duty to spend as much or more energy in trying to prevent it, and his committee believes that the influence of the medical profession, if properly exercised, would have a great effect on public opinion. Since the conference had considerable doubt as to whether this was a matter which came within the constitution of the Association Professionnelle Internationale des Médecins, Dr. Roorda was asked to send his address to the secretary for transmission to the different groups.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:40 to 10:45 a. m. (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

October 24. Invisible Enemy.
October 26. Open Season for Colds.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:40 to 10:55 over Station WBBM.

The subject for the week is as follows:

October 29. Enjoying Poor Health.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society Honors Veterans' Staff.—A subscription supper and smoker was given by the Tuscaloosa County Medical Society, October 3, in honor of the staff of the U. S. Veterans' Administration at Tuscaloosa. All physicians of the staff have been elected to membership in the society. Dr. Samuel Kirkpatrick, Selma, president of the state medical association, was to be among the speakers.

CALIFORNIA

Vendor Fined for Mislabeling.—The vendor of a so-called patent medicine, which is supposed to contain radium, was arrested recently through the food and drug enforcement division of the state department of health. The preparation was being sold and advertised as a remedy for eczema, high blood pressure, stomach disorders, kidney and bladder trouble and other ailments. On conviction of mislabeling the product that he was selling, the vendor was fined $500 and given a suspended sentence of 180 days in the Los Angeles jail. He agreed to change his labels and to eliminate all signs on display as well as all literature pertaining to the product.

COLORADO

Society News.—A motion picture dealing with diagnosis and treatment of cancer of the skin was shown before the Boulder County Medical Society in Boulder, October 13; material for the film was gathered by Dr. Joseph C. Bloodgood, Baltimore.

Public Health Commission Organized.—A state public health commission was recently organized in Colorado under the direction of Attorney General Clarence L. Ireland. Members include Dr. Amos L. Beaghler, health supervisor of the Denver public schools; Dr. Frank B. Stephenson, Edward L. Woods, Newcomb Cleveland and Caldwell S. Martin. At the first meeting, September 27, plans were discussed for a statewide survey of health conditions. Recommendations developing from the commission's investigations are expected to be placed before the next legislature, which will be asked to make needed changes in the present health laws, newspapers report.

GEORGIA

Society News.—Papers were given before the Randolph County Medical Society in Cuthbert, September 1, by Drs. Francis B. Blackmar and Willis P. Jordan, Columbus, on "Diet in the Treatment of Diseases of the Nose" and "Urinary Obstruction," respectively.——Dr. Henry J. Carswell, Waycross, addressed the Ware County Medical Society in Waycross, September 8, on "Cretinism or Infantile Myxedema."——Dr. Grady E. Clay, Atlanta, addressed the Fulton County Medical Society, September 15, on "Angioid Streaks of the Choroid." Dr. George H. Noble, Sr., Atlanta, among others, gave a paper on amputation of the female breast before the society, October 6. ——Speakers before the first quarterly meeting of the Georgia Hospital Association at Emory University Hospital, Atlanta, included Mr. W. D. Barker, superintendent of the Georgia Baptist Hospital, on financial problems of private hospitals under economic depression, and Mr. J. B. Franklin, superintendent of Grady Hospital, legislation beneficial to hospitals.

ILLINOIS

Society News.—Dr. James G. Carr, Chicago, addressed the McDonough County Medical Society in Macomb, October 11, on diagnosis of cardiac disease.—— Dr. Thurman B. Rice, Indianapolis, addressed the Vermilion County Medical Society in Danville, October 4, on bacteriophage.—— Dr. James H. Hutton, Chicago, addressed the Rock Island County Medical Society, October 11, on "Practical Points in Endocrine Diagnosis and Treatment."—— Dr. Carl A. Hedblom, Chicago, addressed the Adams County Medical Society, Quincy, October 10, on "Diagnosis and Treatment of Pulmonary Abscess and Bronchiectasis."

Free Clinic in Alexander County.—Announcement has been made by the Alexander County Medical Society that a free clinic will be operated by physicians of Cairo and Alexander County for children whose parents are unable to pay for medical services. Under the plan, physicians will give their services free and the Kiwanis and Rotary clubs and other civic organizations will cooperate in supporting the clinic and raising the money to defray the expense of operation. For many years the Rotary and Kiwanis clubs have supported health work among the underprivileged children of Cairo and the county. All cases will be checked to determine that parents are unable to pay and that their children would not otherwise receive help.

Chicago

Dr. Parran to Address Joint Meeting.—Dr. Thomas Parran, Jr., commissioner of health for the state of New York, will deliver an illustrated lecture on "Syphilis as a Public Health Problem," October 31, at the City Club. The meeting will be under the auspices of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine.

Personal.—Dr. Elmer T. Swann was recently awarded the Order of the Purple Heart for meritorious military service in France.——Dr. Henry Close Hesseltine, instructor in obstetrics and gynecology, University of Chicago, won the $100 annual prize of the Central Association of Obstetricians and Gynecologists for the most original work done by a member during the year. His paper dealt with gynecologic fungi infections in diabetic patients.——Dr. Ernst Gellhorn, from the department of animal biology, University of Oregon, Eugene, has been appointed to a similar position at the University of Illinois College of Medicine.——Mr. William J. Rathje, for twenty-seven years president of Englewood Hospital, died, September 22.

Lectures on Cancer.—Five illustrated lectures on cancer are announced by the Institute of Medicine of Chicago and the Cancer Research Committee of the Chicago Woman's Club, to be delivered by Dr. Max Cutler, director of the tumor clinic, Michael Reese Hospital. The lectures, planned for physicians, interns, senior medical and dental students, and graduate nurses of Chicago and vicinity, will cover the fields of causation, prevention, early diagnosis and treatment. The material presented will include in chronological order the historical landmarks in the progress of the knowledge of cancer, a description of recently discovered contributing causes, and a review of the modern methods of treatment. Special attention will be directed to the newer developments in the technic of the roentgen ray and radium, and the results of the modern treatment will be shown. The lectures will be as follows:

November 4: Causes of Cancer and Its Prevention.
November 11: Early Diagnosis of Cancer.
November 25: Surgical Treatment of Cancer.
November 28: Radiation Treatment of Cancer.
December 2: Results of the Modern Treatment of Cancer.

INDIANA

Society News.—Speakers before the Parke-Vermillion County Medical Society in Clinton, September 20, were Drs. William N. Wishard, Jr., and Henry O. Mertz, Indianapolis, on "Anatomy, Physiology and Surgery of the Prostate."——At the September 9 meeting of the Huntington County Medical Society, Drs. Robert D. Meiser and John B. Eviston, both of Huntington, spoke on "Sinusitis in Children" and "Rectal Anesthesia," respectively. Dr. Don F. Cameron, Fort Wayne, addressed the society, October 4, on "Medical Education and Economics."—— Dr. Thomas B. Noble, Jr., Indianapolis, addressed the Jay County Medical Society, Portland, October 7, on gynecologic surgery.—— The Indianapolis Medical Society discussed goiter at its meeting, October 18. The October 25 meeting will be devoted to the same subject.

IOWA

Society News.—The Madison County Medical Society, Winterset, was addressed, September 12, by Drs. Conreid R. Harken, Osceola, on "Specialties and General Practice," and Leslie Lamb, Lorimor, cancer and the general practitioner.—— Dr. William F. Boiler, Iowa City, addressed the Poweshiek County Medical Society, September 13, on "History of Syphilis." ——The Woodbury County Medical Society was addressed in Sioux City, September 22, by Dr. Howard I. Down, Sioux City, on "Indications for the Treatment of the Complications of Peptic Ulcer."——Included among the speakers before the Austin Flint-Cedar Valley Medical Society in New Hampton, October 11, were Drs. John H. Butts, Waterloo, on "Carcinoma of the Pancreas," and Edward C. Nowak, New Hampton, "Perforations of the Eyeball."——Dr. William W. Pearson,

Des Moines, was named president of the Iowa Academy of Ophthalmology and Otolaryngology at its recent meeting in Waterloo; Dr. Charles M. Werts, Des Moines, is vice president, and Dr. William F. Boiler, Iowa City, secretary.

LOUISIANA

Society News.—Dr. Emmett L. Irwin, New Orleans, addressed the Second District Medical Society at Reserve, September 15, on "Infections of the Hand."——Dr. Hermann B. Gessner reviewed ninety-six cases of abscess of the liver before the Orleans Parish Medical Society, October 10; Drs. Warren L. Rosen spoke on "Place of Electrocardiography in Medicine," and Foster M. Johns, "Importance of the Reticulocyte Count in the Diagnosis and Treatment of Anemia."

Facilities for Indigent Patients.—Clinics for the treatment of persons unable to pay for medical care were opened, September 19, in the new Hutchinson Memorial Building, Tulane University of Louisiana School of Medicine, New Orleans. The Hutchinson Memorial Clinics will at first include two major departments of medicine and surgery with divisional departments in psychiatry, tropical medicine and preventive medicine. Other centers will be added if funds permit. The Hutchinson Memorial Building also provides quarters for the Louisiana State Medical Society and the Orleans Parish Medical Society, in addition to administration offices and teaching facilities for the graduate school of medicine and third and fourth year student classes.

New Department at Louisiana University.—The creation of a department of pharmacology and experimental therapeutics at Louisiana State University Medical Center has been announced in the newspapers. Dr. Clyde Brooks, professor of physiology at the center, has been appointed to head the new department, in which he will carry on investigative work in conjunction with his duties as professor of pharmacology. Before coming to the medical center, Dr. Brooks was professor of physiology and pharmacology at the University of Alabama School of Medicine. Richard Ashman, Ph.D., professor of physiology, will succeed Dr. Brooks as head of the department of physiology, newspapers report. Dr. Ashman was formerly assistant professor of physiology at Tulane University and Vanderbilt University.

MASSACHUSETTS

License Restored.—At a special meeting, September 23, the board of registration in medicine voted to restore the license of Dr. George W. Eastman, Lynn. It had been cancelled, Aug. 20, 1931.

Society News.—Dr. Frank R. Ober, Boston, spoke on arthritis before a joint meeting of the Essex North and South district medical societies, October 19. Dr. Halbert G. Stetson, Greenfield, president, state medical society, talked on activities of the society.

Chiropractic Initiative Measure.—The general election, November 8, presents, in addition to the usual issues of a state and national election, an initiative measure to establish a separate chiropractic practice act, to be administered by an independent board of registration of chiropractors. The Massachusetts legislature has repeatedly killed bills of similar purport, recognizing that the present medical practice act provides adequately for the licensing of any competent person desiring to practice the healing art and that there is no reason why chiropractors should be given preferential treatment, such as the present initiative measure proposes. If the pending initiative measure should be adopted, chiropractors could be licensed with distinctly inferior qualifications. The initiative measure purposes to permit chiropractors licensed under its provisions only to locate and adjust "by hand the malpositions of the articulations of the human spine," but neither to administer drugs nor to practice surgery or obstetrics. There is, however, no limit on the diseases that chiropractors are to be allowed to treat; cancer, syphilis and appendicitis are to be cured, like everything else, by manual adjustments of spines.

MICHIGAN

Warning About Poisonous Mushrooms.—Sixteen persons from eight families in Detroit were made ill by eating poisonous mushrooms during the week ended September 24, according to the city department of health. One fatality occurred. The health department has issued a warning about poisonous mushrooms, as these fungi are most abundant in the autumn, particularly following warm rains. Unless one has had special training which enables him to distinguish edible from poisonous varieties, he should use only mushrooms purchased from a commercial grower.

Memorial to Dr. Canfield.—A gift of $35,000 from Mrs. Roy Bishop Canfield to establish the Roy Bishop Canfield Memorial Fellowship in Otolaryngology at the University of Michigan Medical School, Ann Arbor, was accepted by the board of regents, September 30. The fund will commemorate Dr. Canfield, who was professor of otolaryngology at the university until his death last May. Research and study in otolaryngology will be promoted by the provisions of the fellowship, which will be granted by the regents to promising workers on the recommendations of medical school authorities and others.

Society News.—Dr. Cyril K. Valade, Detroit, will address the St. Clair County Medical Society, Port Huron, November 1, on "Common Skin Diseases." Dr. William J. Cassidy, Detroit, addressed the society, October 18, on cancer.——The Detroit Ophthalmological Club heard Dr. Howell L. Begle in a talk, October 5, on "A Doctor's Records of One Hundred Years Ago."——At the September 27 meeting of the Ingham County Medical Society at Lansing, Dr. Frank E. Curtis, Detroit, spoke on orthopedics.——The Washtenaw County Medical Society was addressed, October 11, by Dr. Howard H. Cummings, Ann Arbor, on "Fibroid Tumors of the Uterus."

MINNESOTA

Northern Minnesota Medical Association.—At the annual session of the Northern Minnesota Medical Association in Crookston, September 19-20, Dr. Berton J. Branton, Willmar, was elected president; Dr. Owen W. Parker, Ely, vice president, and Dr. Oscar O. Larsen, Detroit Lakes, secretary, reelected. The next annual session will be held at Willmar. In addition to clinics, the program included papers by the following physicians:

James M. Hayes, Minneapolis, Treatment of Acute Infections of the Extremities.
Cyril M. Smith, Duluth, Treatment of Meningitis.
James R. Manley, Duluth, Postpartum Care and Complications.
Frank J. Hirschboeck, Duluth, Diagnostic Pitfalls.
James K. Anderson, Minneapolis, Etiology of Certain Anal Pathology.
Virgil J. Schwartz, Minneapolis, Bronchoscopic Facts Which the General Practitioner Should Know.
Russell M. Wilder, Rochester, Spontaneous Hypoglycemia.
Waltman Walters, Rochester, Congenital Abnormalities of the Genito-Urinary Tract and Their Treatment.
Olaf J. Hagen, Moorhead, How a General Practitioner Looks at the Thyroid.
Sheldon H. Stuurmans, Erskine, Dukes' Disease.
Hobart A. Reimann, Minneapolis, Recent Advances in Regard to Pneumonia and Its Treatment.

At the banquet, the guest speaker was Dr. Melvin S. Henderson, Rochester, president of the state medical association. Other speakers included Richard E. Scammon, Ph.D., dean of medical sciences, University of Minnesota, on "Relation of the Medical School to the Profession."

MISSOURI

Personal.—Dr. Katharine B. Richardson, Kansas City, was the honor guest at a birthday dinner, September 28, by the Mercy Hospital Century Club. It was the eighth birthday party the club has held for Dr. Richardson.——Dr. Ernest von Quast, Kansas City, who has practiced medicine in Kansas City for nearly fifty years, observed his seventy-ninth birthday, August 21, in Research Hospital. Dr. von Quast is the last of the original staff of physicians at the hospital, which he helped to found in 1886. He has been a patient there for the last four months.

NEBRASKA

Society News.—Dr. Charles W. M. Poynter, Omaha, among others, addressed the Fifth District Medical Society, David City, September 12, on peritonitis.——Drs. Albert E. Buchanan, Fremont, and Anatole Kolodny, Sioux City, Iowa, among others, addressed the thirty-sixth annual meeting of the Elkhorn Valley Medical Society at Norfolk, September 1. Five other members presented case reports.——Dr. J. Arthur Myers, Minneapolis, addressed the Omaha-Douglas County Medical Society, Omaha, October 12, on tuberculosis. Dr. Myers also addressed the Ninth District Medical Society, meeting jointly with the Nebraska Tuberculosis Association at Kearney, October 11, on "Childhood Infection and Disease." At the latter meeting Drs. John W. Duncan and Joseph A. Weinberg, Omaha, spoke on surgical aspects of pulmonary disease.

NEW HAMPSHIRE

Annual Psychiatric Meeting.—The annual fall meeting of the New England Society of Psychiatry will be held, October 26, at the New Hampshire State Hospital, Concord. Dr. Benjamin W. Baker, superintendent of the school for the feebleminded in Laconia, will speak on "Mental Deficiency."

NEW YORK

Society News.—Dr. Richard Kovacs, New York, addressed the Washington County Medical Society, Hudson Falls, October 4, on "Recent Developments in High Frequency Currents and Ultraviolet Rays in Treatment of Disease and Injury."——Dr. Clayton W. Greene, Buffalo, addressed the Rockland County Medical Society, August 25, at Pomona, on "Therapeutic Use of Suprarenal Extract in Addison's Disease."

New York City

Personal.—George Blumenthal, president of Mount Sinai Hospital, was guest of honor at a dinner, October 6, given by the hospital trustees to celebrate his forty years of service as a trustee and twenty-one years as president.——Dr. Laurent Feinier has been appointed clinical professor of neurology at Long Island College of Medicine.——Frances Krasnow, Ph.D., for fifteen years on the staff of the department of biological chemistry, Columbia University College of Physicians and Surgeons, has joined the staff of the School for Dental Hygienists, Guggenheim Dental Clinic.

OKLAHOMA

Fall Clinical Conference.—The Oklahoma City Clinical Society will hold its annual fall clinical conference, October 31 to November 3, at the Oklahoma Biltmore Hotel. Twenty-one guest lecturers will present a program of addresses during the week as follows:

Dr. Warren T. Vaughan, Richmond, Va., Food Allergy as a Common Problem; Nasal Pathology as a Nonspecific Factor in Treatment of Inhalant Allergy.
Dr. Hugh H. Young, Baltimore, Surgery of the Prostate.
Dr. E. Spiegel, Vienna, Austria, Clinical Examination of the Vegetative Nervous System; Nervous Disorders.
Dr. George Gray Ward, Jr., New York, Surgical Treatment of Cystocele, Rectocele and Enterocele; Surgery or Radiology in Treatment of Cancer of the Uterus.
Dr. Clifford J. Barborka, Chicago, Diet in Health and Disease; Dietary Regime in Cardiovascular Renal Disease.
Dr. Leroy Sante, St. Louis, Roentgenographic Detection of Lung Infection.
Dr. Edward H. Cary, Dallas, Texas, President, American Medical Association, Tumors of the Eye.
Dr. Louis J. Hirschman, Detroit, Sphincter Ani—Surgically Considered; Preparation and After-Care of Patients Requiring Rectal Surgery.
Dr. Frederick A. Willius, Rochester, Minn., Distinguishing the Normal from the Diseased Heart; Present Status of Coronary Arterial Disease.
Dr. Donald C. Balfour, Rochester, Minn., Cancer of the Stomach; Diseases of the Duodenum.
Dr. Ralph C. Brown, Chicago, Treatment of Gastric and Duodenal Ulcer; Functional Disorders of the Intestine.
Dr. Hugo Ehrenfest, St. Louis, Birth Injuries; Pregnancy Complicated by Disease.
Dr. Walter Timme, New York, Calcium Deficiency; Status Hypoplasticus and Its Relation to the Inadequacies of Life.
Dr. Elliott G. Brackett, Boston, Anatomical Variations as Factors in Causation of Low Back Pain.
Dr. William Engelbach, New York, Sex Hormone of the Pituitary Gland; Growth Hormone of the Pituitary Gland.
Dr. William V. Mullin, Cleveland, Sinus-Chest Infections.
Dr. William Wayne Babcock, Philadelphia, Vaginal Peritoneal Operations; Tumors that Originate from Endocrine Dysfunction.
Dr. John Lovett Morse, Boston, Fads and Fancies in Present-Day Pediatrics.
Dr. Gerald B. Webb, Colorado Springs, Significance of Pleurisy.
Dr. Charles C. Dennie, Kansas City, Treatment of Syphilis.
Dr. Henry H. Kessler, Newark, N. J., End-Results in Fractures.

Drs. Young and Sante will present a symposium on urology, Monday evening, and Drs. Brackett and Kessler, a symposium on industrial surgery, Wednesday evening. The Oklahoma County Medical Society will give a dinner in honor of the guests, Monday evening; the annual clinic dinner will be given Tuesday, and a stag smoker Wednesday. A golf tournament will be played Thursday afternoon. Dr. Ray M. Balyeat is president of the clinical society.

OREGON

Fraudulent Solicitor.—The offices of *Archives of Physical Therapy, X-Ray, Radium* report that a man giving the name H. G. Wilson has appeared in Portland and other cities of Oregon representing himself as an agent for that publication and collecting cash for subscriptions. The journal states that it has never had an agent or solicitor in Oregon and wishes to warn physicians not to give this impostor their subscriptions.

PENNSYLVANIA

Personal.—Dr. Paul R. Correll, Easton, was presented with a watch and chain in recognition of his services to organized medicine at the recent annual meeting of the Medical Society of the State of Pennsylvania in Pittsburgh.——Dr. Stewart L. Rankin, Lansdowne, has been appointed assistant director of student health service at Lehigh University, Bethlehem.

State Medical Election.—Dr. Donald Guthrie, Sayre, was chosen president-elect of the Medical Society of the State of Pennsylvania at the annual meeting in Pittsburgh, October 5. The next annual session will be held in Philadelphia. Vice presidents elected were Drs. Charles B. Maits, Pittsburgh; Ford M. Summerville, Oil City; Jefferson H. Wilson, Beaver, and Curtis C. Mechling, Pittsburgh. Dr. Walter F. Donaldson, Pittsburgh, was reelected secretary.

State Health Day.—Under the auspices of the Medical Society of the State of Pennsylvania and the state department of health a state-wide celebration to be known as State Health Day is to be held, October 26. Component county medical societies will present special health programs at public meetings, with the cooperation of the various health agencies of the state. The Pennsylvania Hospital Association has requested hospitals of the state to invite the public to inspect the institutions that day and public schools will also stress preventive health information during the week. The theme of the celebration will be the importance of observance of laws of health, especially under existing economic conditions.

Society News.—Dr. George F. Dick, Chicago, will deliver a lecture on "The Present Status of Scarlet Fever Control" in Pittsburgh, October 26, under the auspices of the Pittsburgh Diagnostic Clinic.——A course in the use of the slit-lamp microscope will be given by Dr. Harvey E. Thorpe and associates at the Montefiore Hospital, Pittsburgh, beginning November 3 and continuing through eight weekly sessions. The course was arranged by the graduate education committee of the Allegheny County Medical Society.——Five Cleveland physicians conducted clinics at the Uniontown Hospital, October 13, at the invitation of the Fayette County Medical Society as follows: Drs. William V. Mullin, in otolaryngology; Arthur Carlton Ernstene, heart disease; Bernard H. Nichols, roentgenology; Robert S. Dinsmore, Jr., surgery, and Charles C. Higgins, genito-urinary disease.

Philadelphia

Society News.—The Philadelphia County Medical Society will observe State Health Day, October 26, with a program of addresses on public health questions by Drs. James M. Anders, J. Norman Henry and Seneca Egbert.——Dr. I. Newton Kugelmass, New York, among others, addressed the Philadelphia Pediatric Society, October 11, on "Preventing Loss of Weight in the New-Born."——Drs. Stanley P. Reimann and Paul S. Seabold, among others, presented a paper on "Roentgenograms of the Breast and Its Lesions and Their Histologic Correlation," before the Pathological Society of Philadelphia, October 13.——Dr. Edward Weiss addressed the Philadelphia Psychiatric Society, October 14, on "The Emotional Life and Chronic Illness and the Internist."——Speakers before the Philadelphia Academy of Surgery, October 3, were Drs. James B. Mason, on "An Evaluation of the Tannic Acid Treatment of Burns"; Isidor S. Ravdin and Charles G. Johnston, "Use of Continuous Intravenous Infusions in the Acute Abdominal Infections."——Drs. Edward F. McLaughlin and Frederick A. Bothe addressed the Obstetrical Society of Philadelphia, October 6, on "A New Vaginal Speculum for Cauterization of the Cervix" and "Hyperthyroidism Associated with Pregnancy," respectively.

UTAH

New Dean at University of Utah.—Dr. Lyman L. Daines, professor of pathology and bacteriology, University of Utah School of Medicine, is the new dean of the school, appointed to succeed Dr. Beryl I. Burns, who resigned to become head of the department of anatomy at the newly organized Louisiana State University Medical Center, New Orleans.

VIRGINIA

State Medical Meeting at Richmond.—The Medical Society of Virginia will hold its sixty-third annual meeting in Richmond, November 1-3, under the presidency of Dr. Isaac C. Harrison, Danville. The guest speakers will be Drs. Robert B. Osgood, Boston, and William Minor Dabney, Ruxton, Md., who will address the opening session on "The Most Generally Prevalent, the Most Inadequately Treated and the Most Easily Controlled Chronic Disease" and "A Third of a Century of

Medical Education in the United States." A symposium on heart disease will be presented by Drs. James Edwin Wood, Jr., University; Walter B. Martin, Norfolk; George B. Lawson, Roanoke, and William B. Porter, Richmond. Among Virginia physicians who will give addresses are:

Dr. John Shelton Horsley, Richmond, Cancer of the Colon.
Dr. Warren F. Draper, Richmond, The Year's Progress in Health Work Relating to the Medical Profession.
Dr. Kenneth F. Maxcy, University, and L. E. Starr, D.V.M., Blacksburg, Undulant Fever and Its Relation to Brucelliasis in Cattle and Swine in Virginia.
Dr. Elbyrne G. Gill, Roanoke, Foreign Bodies in the Air and Food Passages.
Dr. Douglas VanderHoof, Richmond, Subacute Bacterial Endocarditis Following Extraction of Teeth.
Drs. Warren T. Vaughan and William Randolph Graham, Richmond, Pollen Prevalences in Virginia: Review of a Six-Year Survey.

Dr. Osgood will hold a special clinic on arthritis, Tuesday afternoon, November 1, and other clinics will be held during the week on general medicine, surgery, obstetrics and pediatrics. A golf tournament will be played Tuesday at the Country Club of Virginia. The Virginia Pediatric Society will hold its annual luncheon meeting Wednesday, November 2.

WISCONSIN

Marquette's New Building Completed.—The Marquette University School of Medicine began the fall term in a new $500,000 building, completing another unit in the university's plan for a unified campus. The new building is four stories high, of collegiate Gothic design and contains 209 rooms, principally laboratories, thus providing opportunity for more extensive research than the university has had heretofore. On the roof are a penthouse for animals and a fireproof roentgen ray

storage room. A museum of pathology, a museum of anatomy, an aquarium to care for marine life used in experimentation, lounges, libraries, a public eye clinic and a student medical department are other features in addition to ample facilities for administration and class work. Faculty members have private laboratories. The new school can accommodate 375 students, in comparison with 290 in the old building.

GENERAL

American Physicians Honored by British.—Drs. Simon Flexner, New York, Harvey Cushing, Boston, and William H. Welch, Baltimore, were elected to corresponding foreign membership in the British Medical Association at the centenary meeting held in London, July 21-30. Twelve physicians were elected to this membership, which was instituted at the recent session as a part of the hundredth anniversary celebration.

Obstetricians Require Certification of Specialists.—At the recent annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, a resolution was adopted requiring that future candidates for fellowship in the society who profess to be specialists in obstetrics or gynecology, or both, shall be diplomates of the American Board of Obstetrics and Gynecology. Exceptions to this rule may be made only by the executive council in cases of candidates who are in its opinion preeminent in their field.

News of Epidemics.—Ten cases of typhoid with three deaths at Willard, Ohio, in September, were traced to polluted wells on farms where milk consumed in the town is produced, according to newspaper reports. Thirty-two cases were reported in Iowa Falls, Iowa, September 29. Ten cases followed a picnic held at Sidney, Maine, August 25.——Schools were closed for a week in Frazeysburg, Ohio, in September, because of an outbreak of scarlet fever.——About twenty cases of diphtheria were reported in Athens, Tenn., September 28; the appearance of one case in Troy, Iowa, caused health authorities to close the community school.

Association of American Medical Colleges.—The forty-third annual meeting of the Association of American Medical Colleges will be held in Philadelphia, November 14-16. Mornings will be spent in formal sessions and afternoons will be devoted to visits to Philadelphia medical schools. Monday morning addresses on the present status of teaching will be presented by Drs. Irving S. Cutter and John S. Coulter, Chicago, on physical therapy; William T. Coughlin, St. Louis, surgery in undergraduate schools; George J. Heuer, New York, graduate surgery; Franklin G. Ebaugh, Denver, psychiatry, and J. Parsons Schaeffer, Philadelphia, applied anatomy. Dr. Fred C. Zapffe, Chicago, will report on studies of 1932 applicants for admission to medical schools, student accomplishment for the freshman class of 1930 and entrance credentials of the class of 1931. Among other speakers will be Drs. Madge Thurlow Macklin, London, Ont., on "Medical Genetics: An Essential Element in the Field of Preventive Medicine"; William Pepper, Philadelphia, "Tuberculosis in Medical Students," and Alfred Stengel, Philadelphia, "Research in Medical Schools."

Teaching of Ophthalmology.—At the recent annual meeting of the American Academy of Ophthalmology and Otolaryngology in Montreal, a special committee on undergraduate teaching of those specialties, after a study conducted during the past year by means of questionnaires, made the following recommendations:

1. Ophthalmology should be a compulsory subject in both didactic and clinical phases.
2. The undergraduate course in ophthalmology should embrace fifty actual hours as a minimum, which should be given during the junior and senior years, divided into fifteen didactic hours and thirty-five clinical hours, in which the student examines patients in the outpatient department.

It was further recommended that new instructors should be accepted in medical schools only after certification by the American Board of Ophthalmic Examinations or the American Board of Otolaryngology. The academy also organized a committee on extramural instruction to assist medical schools and societies to arrange courses of instruction. To this end the committee has developed a list of specialists who are available in giving local courses and will furnish lists of teachers on any desired subject, according to ability, geographic location and availability.

Spurious "Doctor" Now Victimizes Hotels.—The Edgewater Beach Hotel, Chicago, reports that an impostor using the credentials of Dr. William Thornwall Davis, Washington, D. C., persuaded the hotel to cash a check for $125 on the Franklin National Bank of Washington. When the check was returned marked "no account," investigation revealed that Dr. Davis had lost or been robbed of his pocketbook and credentials at the New Orleans session of the American Medical Association last May, and that the impostor had used them in New Orleans hotels. After leaving the Edgewater Beach Hotel the man is said to have cashed another check at the Knickerbocker Hotel, Chicago. He has also been reported as going through the same procedure at French Lick, Ind., using credentials stolen from a Chicago physician (THE JOURNAL, October 1, p. 1183). In addition, a physician in Tulsa, Okla., has reported that money had been stolen from his locker in Morningside Hospital there in May by a man whose description fits that of the impostor seen at French Lick. In Tulsa also he posed as a physician, even advising an intern concerning treatment. The Chicago hotel describes the man as about 45 years old, weighing about 140 to 150 pounds, iron gray hair, thin face with a prominent nose, pallid complexion, nervous jerky demeanor, giving the impression that he might be a drug addict.

PHILIPPINE ISLANDS

Philippine Islands Medical Association Requests Cancellation of Estrada Appointment.—The Medical Society of Manila and the Council of the Philippine Islands Medical Association have adopted resolutions requesting the recall of the appointment of Dr. Salvador G. Estrada to the Board of Medical Examiners of the Philippine Islands. In the resolutions it is pointed out that Dr. Estrada has published unprofessional advertisements containing extravagant claims and mentioning secret remedies. The *Journal of the Philippine Islands Medical Association* in its August issue protests seriously against this appointment, pointing out that Estrada has established a clinic offering special cures and indicating that such an appointment to the board of medical examiners will lower the status of medical practice in the Philippine Islands. The Iloilo Medical Society also adopted a resolution of protest, September 14, requesting the recall of the appointment.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 1, 1932.

The Public Health in 1931

The annual report on the public health in 1931 by the chief medical officer of the ministry of health has just been published. The number of births in England and Wales during the year was 632,081, giving a rate of 15.8 per thousand; the number of deaths was 491,630, giving a rate of 12.3. The infant mortality rate was 66 per thousand births. The chief causes of death in the order of mortality were (1) diseases of the heart and circulation (255 per thousand deaths); (2) respiratory diseases (130); (3) cancer (121); (4) diseases of the nervous system (82); (5) tuberculosis (73).

INCREASE OF DEATHS FROM CANCER

The mortality from cancer continues to increase. The number of deaths was 59,346 against 57,882 for 1930. Of these, 27,777 occurred in males and 31,569 in females. These figures give a rate of 1,484 per million persons living against 1,454 for 1930. The rate for males is 1,450 and for females 1,516. As suggested in last year's report, an annual increase is to be expected, partly as a result of the increase of population, especially at the higher ages, when cancer is more prevalent, and partly from the increasing ability of the physician to diagnose the disease in the less accessible organs.

TRAFFIC ACCIDENTS

The accidents caused by vehicles and horses in streets and roads numbered 165,112, and the resulting deaths, 6,031. The great increase due to automobile traffic is shown by the fact that in 1921 the accidents numbered only 57,481 and the deaths, 2,660. Thus the death rate has risen from 7 per hundred thousand of population to 16 within a decade. The average number of persons injured daily was 506 and killed, 16. The largest number of deaths and injuries took place in August, and, of the deaths, 1,326, occurred in the London area. Happily, the total number of deaths was 614 less than in 1930.

SUICIDES

In 1931, 3,527 males and 1,524 females committed suicide—1,100 more males and 526 more females than in 1920. The propensity to die by one's own hand is as closely correlated with age as is death from natural causes. The suicide rate increases fairly regularly with age, and if allowance is made for the aging of the population it is found that the suicide rate of males is actually lower than before the war but this is not so for women. The increasing popularity of coal gas as a means of suicide is shown by the fact that it accounts for almost a fourth of the male suicides and nearly a third of the female. More than eight times as many males and twelve times as many females kill themselves in this way now than did so twenty years ago.

The Overgrowth of Scientific Literature

Sir Charles Sherrington, F. R. S., president-elect of the Association of Special Libraries and Information Bureaux, speaking at the opening of the association's conference at Oxford, said that it had been estimated that the number of papers on physiology appearing during the year had risen from 3,500 in 1905 to 18,000 five years ago. If that was the number in such an isolated subject as physiology, what must it be in other subjects? They ran a risk of being snowed under—of not being able to keep pace intelligently with that enormous output. Even at the Science Museum Library at South Kensington, the largest of its kind, only 8,000 out of 26,000 periodicals were taken in. In time, the speaker hoped, the governments throughout the world would combine with the association to make an international catalogue of scientific subjects. The Royal Society had spent at least $750,000 in trying to keep count of the scientific journals, but this work had to be stopped. He hoped to see national science libraries set up where one could get, on payment, all the information that one needed on any subject or be informed where to get it.

Mental Treatment for Criminals

A revolutionary change in our penal system is proposed in the annual report of the prison commissioners by Dr. W. Norwood East, the medical commissioner. He recommends that a large number of men and women convicted of various offenses should, instead of being sent to prison, be placed on probation on condition that they attend as patients at mental homes. Dr. East says that persons come before the courts from time to time who, although not certifiable under the lunacy or mental deficiency acts, are capable of benefit from mental treatment either as inpatients or outpatients. There is reason to hope that a certain number of criminal careers may thus be checked. Cases of attempted suicide are mentioned as specially suitable for such treatment. That many courts agree with Dr. East's view that crime may be a mental disorder is shown by the fact that during 1930 2,528 prisoners were remanded for mental observation. Plans for making prison less repellent are proceeding. The system of allowing certain prisoners to smoke in their cells or at exercise is being extended. More prisoners are to receive small payment for work done in prisons. Great improvement is being made in the prison diet, especially in the avoidance of monotony. Special prisons are being set aside for the industrial training of young convicts.

PARIS

(From Our Regular Correspondent)

Sept. 28, 1932.

Congress of Societies Favoring Cremation

Cremation in France has made slow progress. The Catholic clergymen raise objections that do not appear to be raised in other countries, and the public shows a dislike for cremation for sentimental reasons. The medicolegalists raise the objection that it destroys evidence in regard to crime. There are very few crematories in France and these are in the large cities. Nevertheless, in recent years, some societies have been formed to create propaganda in favor of cremation, one condition of membership being that the person will provide in his will for his cremation after death. The total membership in these soceties is 3,285, a very small number in comparison with the population of France. This small group is, however, very active, and many lectures on the subject have been delivered. The president of the federation of all local branches is Professor Barrier, a former president of the Academy of Medicine. This federation has just held in Strasbourg a congress of all the branch societies. Professor Barrier delivered an address which was to have been broadcast by radio; but, at the last moment, the management of the radio station withdrew its permission, assigning as the reason that cremation was too gloomy a subject for its listeners, who were accustomed to hearing mainly light music. The address was given in the hall of the conservatory of music before a large audience; Professor Barrier presented cremation of human bodies as a social necessity to prevent encumbering of the cemeteries and the pollution of subterranean streams. The large cities are compelled to seek distant parcels of ground for new cemeteries, and these might better be left for agricultural purposes or reserved as playgrounds. The total area occupied by all the cemeteries of France is already immense, and one can calculate from the annual death rate how long it will be before the dead will occupy more ground than the living. The scientific section of the congress comprised a number of technical communications presented by architects, statesmen, physicians and others. The construction of crematories as against the cost of cemeteries was considered, and changes

needed in the police regulations governing the transportation of urns were discussed. The congress closed with the festival in celebration of the tenth anniversary of the cremation society of Strasbourg. A program, consisting of musical numbers and several scenes from a comedy, was given to show that the members of the society were not actuated by any gloomy consideration.

The Smoke Evil

The immense volume of smoke usually emitted by the chimneys of factories and other buildings has long been decried by the hygienists of other countries as an insanitary influence and has given rise to countless police regulations. France also has had many such ordinances, but until recently they were never much enforced. The oldest ordinance dates back to 1854 and provides that factory owners, within a period of six months, must cease using fuels that produce more smoke than do coke and wood. Little attention was given to the ordinance, and a new decree was promulgated in 1898, which prohibited in Paris the emission of black, dense and prolonged smoke. The word "prolonged" made it possible for most factory owners to escape the infliction of penalties. As the factories increased in number in the vicinity of large cities, the situation became intolerable. It has been calculated that in Paris 160,000 Kg. of coal dust is deposited annually in the streets and on the roofs of the houses. The pall of smoke that forms above the cities arrests the bactericidal solar rays and is one of the chief causes of the unhealthfulness of cities. Furthermore, the air contaminated by the smoke from many factories contains harmful gases, which, suspended in the mist and fog, cause many accidents. Florentin, estimating at eight million tons the consumption of coal in the Paris region, has calculated, on the basis of the assumption that the coal contains 1 per cent of sulphur, that 200,000 tons of sulphuric acid, arising from the oxidation of the sulphuric acid in the atmosphere, is poured every year over Paris, thus corroding very perceptibly the surface of monuments and buildings and exerting a baneful action on the respiratory tracts of the inhabitants. The Conseil supérieur d'hygiène et de salubrité of the department of the Seine opened a competitive contest for the best apparatus to be submitted that would eliminate the smoke by burning the coal dust before emitting gases into the factory chimneys. This contest brought out many excellent types of apparatus, so that the industrialists have no longer any excuse for failing to obey the city ordinance. The mayor of Lyons promulgated, Feb. 25, 1929, a decree, based on a knowledge of the existence of the foregoing apparatus, prohibiting the factory owners of the area about Lyons from producing any smoke which would becloud the atmosphere or be accompanied by toxic products. After six months, he found that 40 per cent of the industrialists had complied, while most of the others had removed their factories to more remote areas. Finally, April 21, 1932, parliament passed a law applicable to all of France, prohibiting the production of smoke and establishing fairly high penalties for infractions of the law. But, in order to give factory owners an opportunity to make the necessary changes, this law will go into effect only at the end of a year for the establishments controlled by the government and the communes and only after the lapse of three years for privately owned establishments. The Conseil d'hygiène had pointed out some time previously that government establishments showed the least concern about violations of the law. Thus, in Paris, the Hôtel central des postes, the Boulangerie centrale militaire and the Manufacture des tabacs are the chief offenders in the production of black and continuous smoke.

Consultation Centers for Infant Welfare

Prof. Pierre Budin founded, in 1892, a society that today may be counted among the societies that have brought about the greatest progress in puériculture in France, the administration of which, since his death, has been continued by his wife. These are the consultation centers for nurslings, which were created at first as annexes of the obstetric services of hospitals but today are installed in any convenient building of a populous faubourg or of a village. According to Budin's formula, all that is needed to establish such a consultation center is a good scale, an assistant and a physician equipped with writing material. Very little expense was attached to these dispensaries until they took on the added duty of supplying free milk to poor mothers. Infants are brought to the center every week by their mothers. They are weighed, measured and examined, and the data are entered in a record book. The physician gives also any advice needed as to general hygiene, the quantity of milk the child requires daily and how often it is to be breast fed or is to receive a bottle. These are all the data that are necessary. This regular supervision of infant care has rendered an important service. It has taught mothers that child care constitutes a science which must be learned and that absolute reliance cannot be placed on instinct. It has contributed to the gradual lowering of infant mortality in France, which was especially high in the rural sections and in the families of workmen. In place of 150,000 deaths of children under 1 year of age, in 1892, there are at present only 70,000 deaths. The deaths from infantile diarrhea have dropped from 60,000 down to 16,000. The success of this type of dispensary, new at the time of its creation, was rapid, and similar organizations were soon created in other parts of France and in foreign countries. A recent study has shown that, at present, twenty-five years after the death of Budin, there are in France 4,000 consultation centers of the type that he introduced. They are unequally distributed over France, being dependent on the action of the municipal councils and the amount of the small appropriations that they decide to accord them. Savoy is at the head of all the French departments, having a consultation center for nurslings for each commune. It has been noted with regret that there are some departments in France without a dispensary, owing to the lack of understanding of the need on the part of the departmental councils. According to the statement of a health officer, a department in eastern France refused to approve an appropriation for the creation of such consultation centers, on the ground that they were useless, but it approved the appropriation of a considerable sum to promote the raising of lobsters.

Deaths

Prof. Félix Lejars has died at the age of 69. He was professor of clinical surgery at the Faculté de médecine de Paris and a member of the Academy of Medicine. His life had been devoted exclusively to surgery. He was a worthy member of a veritable dynasty of eminent French surgeons. He was reserved and reticent, devoting no time to foreign pursuits; he became a skilled practitioner and a remarkable teacher, who trained many pupils. His Traité de chirurgie, published in 1899, met with world-wide success and was translated into ten languages. It was followed by a treatise on clinical exploration and surgical diagnosis, which likewise became a classic. During the war, he was the director in Paris of the Hôpital militaire de Villemin.

Dr. Maurice Nicolle, professor at the Institut Pasteur, has died at the age of 70. Professor Nicolle was a bacteriologist of great prominence who established the Institut Pasteur de Constantinople, made researches on the Bacillus dysenteriae, on the testing of toxins and serums, and on the chemotherapy of trypanosomiasis, and was the instructor of his younger brother, Charles Nicolle, founder of the Institut Pasteur de Tunis, Nobel laureate and at present professor in the Collège de France, Paris.

Dr. Laumonier, who died at the age of 72, was an eminent representative of the French medical press. He was a collaborator on a large number of medical journals, reviews and encyclopedias. He also carried out some interesting personal researches and published, among other things, a book entitled "Thérapeutique des péchés capitaux," which is a genuine chef-d'oeuvre by reason of its subtle psychology.

BERLIN

(From Our Regular Correspondent)

Sept. 12, 1932.

Heart Disease in Germany

A few years ago, to judge from statistics on the causes of death, it looked as if heart disease was increasing. The statistics on heart disease included, to be sure, disorders of the circulatory organs. In 1924, 17.3 per cent of the men and 17.9 per cent of the women dying in that year succumbed to diseases of the heart and circulatory organs; in 1929, the percentages were 21.1 and 21.5, respectively. The observations on the influence of the present bad economic conditions on the human heart are not the same in the various classes of the population. As there are no uniform federal statistics on heart disease, every large sick benefit association has its own statistical methods, which have undergone changes in recent years.

A statistical report of the Allgemeine Ortskrankenkasse, Berlin, shows that the amount of heart disease declined from 1930 to 1931. However, the duration of the individual case averaged much longer. The average duration of other diseases ranged from thirty to thirty-seven days. In 1930, the male heart patients were incapacitated for an average period of fifty-two days, and the female heart patients for an average of forty-nine days. In 1931, however, the duration of the morbidity was sixty-eight and sixty-three days, respectively.

In another sick benefit association, which comprises many workmen, it was established in 1927 that heart disease was very prevalent, and a special hospital for heart patients of the krankenkasse was erected. Here, during the past two years, heart disease has declined considerably, after making allowance for the decreased number of members. These observations concern, to be sure, only the cases that led to incapacitation of workmen for a long period. No record is available of the number of persons receiving ambulant treatment during office hours. It is also assumed that the emergency decree of July, 1930, establishing a fee for the issuance of a certificate of sickness and with the further provision that sick benefits shall be paid only in such cases in which the wages or salary is forfeited on account of absence from work, has prevented many members from reporting sick. There has also been a marked reduction in cardiac neuroses among the members of the Allgemeine Ortskrankenkasse, Berlin. Entirely different observations were made by a well known heart specialist in the west end of Berlin, who treats almost exclusively well-to-do patients. He has observed that as a result of the economic disturbances certain forms of heart disease are much more frequent than formerly. Heart muscle disorders and valvular defects were formerly more frequent sequels of articular rheumatism than they are today. This form has become much more rare; but there are the same manifestations after other diseases of an infectious type, these being especially frequent after severe influenza. These disorders have, of course, only an indirect connection with "hard times," when, for example, influenza or other infectious disease was incompletely cured.

Congress on Defects in Speech

The fifth congress of the Internationale Gesellschaft für Logopädie und Phoniatrie in Vienna was attended by representatives from eleven countries. One important service performed by this society, which was founded in 1924 by Prof. Emil Fröschels of Vienna, and whose honorary president is Prof. T. Flatau of Berlin, is the repeated emphasis that has been laid on the importance of the systematic detection and treatment of persons suffering from defects of voice and speech. It is extremely unfortunate that a large portion of mankind is inclined to regard the stutterer, the stammerer and even the deafmute more as comical figures than as patients deserving sympathy and treatment.

Madame Branco van Dantzig of Rotterdam, whose services in the organization of special classes for pupils with a defect in speech are well known, described the present status of aid to persons with speech defects. Even in Germany, which appears to lead in this field, all children of school age presenting defects of speech have not yet been discovered. In many countries great efforts are being put forth, as became evident from the papers presented by Russell (Ohio, U. S. A.), Segre (Turin) and Vergani-Marelli (Turin).

Papers on the methods employed in the auxiliary schools were offered by Schulrat Gnam of Vienna and by Soucek of Prague. It is becoming more evident that, owing to the methods employed in ascertaining deafness, an unusually large number of children whose audition is by no means entirely destroyed are admitted to institutions for deafmutes. That the remnants of normal hearing can be trained and in some instances improved, if proper methods are applied, was demonstrated by Frau Dr. Auguste Jellinek of Vienna. A careful observation of such treatment revealed the exceedingly interesting fact that patients who had learned in the school for deafmutes to read the lips, after receiving adequate training of their auditive capacity, had to be taught to understand spoken words. They had lost all memory of the relationship between lip manifestations and the actual sounds of the spoken words and were compelled to learn this relationship again. The observation was made that a child trained in an Hungarian school to read the lips, whose hearing was developed at the Vienna clinic, was unable to hear or understand Hungarian words when spoken and was unable to read the lips of persons speaking German.

The papers read on the first day of the congress dealt with the nervous and central origins of speech disturbances. The connections between brain activity and speech are not yet fully understood. Research on the subject can proceed only gropingly by observing the manifestations and endeavoring to arrange them in systematic order. Especial interest attaches to the observations of the Viennese neurologist Prof. Dr. E. Pötzl on patients who, having grown up in an environment in which several different languages were spoken, were suffering from a partial loss of the ability to speak (aphasia). It was found that the language last acquired, as well as the language least used, suffered losses most easily, whereas the language most used—the mother tongue—resisted most stubbornly impairment from without. Professor Marburg of Vienna called attention to the fact that, in addition to the well known speech centers in the cerebrum, the so-called crescentic circles of the cerebellum play an essential part in the production of unimpaired speech. When these circles were involved, marked impairment of speech was observable even though the cerebral speech centers were not attacked. To what extent speech defects point to injuries of the whole personality was shown by the researches of Frau Román-Goldzieher (Budapest) and Dr. Feuchtwanger (Munich), which they carried out with the handwriting of persons with speech defects and/or brain injuries. They used a new apparatus called the "graphódyn" for the continuous registration of the writing pressure.

Surgeons and phoniatricians discussed the operative treatment of defects of voice and speech due to organic imperfections. Dr. Barczinski of Berlin is convinced that irregularities in the position of the jaws and the teeth could not always be held responsible for the utterance of hissing sounds. His evidence indicated that both manifestations might be traced to a certain weakness of the muscles of the tongue and the gums.

With the aid of measurements taken of the larynx of mammals of both the lower and the higher orders, Dr. Rémai of Budapest showed that the larynx in its primitive development was at first only an organ for the promotion of undisturbed respiration. Its voice-forming function seemed to have been acquired at a later period.

Does Obesity Make the Organism More Sensitive?

The Notgemeinschaft der Deutschen Wissenschaft furnished funds that enabled the Munich hygienist Kisskalt to institute

animal experiments in order to discover whether the observations of the life insurance companies, according to which the mortality of corpulent persons from nearly all diseases is greater than that of persons of normal weight, correspond with the facts. Kisskalt discovered, as he reports in *Forschungen und Fortschritte*, that, after an injection of tetanus poison, the mortality of fattened mice is considerably greater than that of those poorly nourished; the same observations were made following the ingestion of highly toxic doses of alcohol. It was confirmed, therefore, that corpulent persons, owing to their greater susceptibility to bacteria and other toxins, are more likely to contract disease than are lean persons.

BUCHAREST

(From Our Regular Correspondent)

Sept. 12, 1932.

The Number of Physicians in Russia

Dr. Raduceanu, a practicing physician in Russia, now on a holiday in Rumania, imparted the following information: The number of physicians in Russia is three times as much as it was before the war. Among 68,000 Russian physicians, 30,000 are women. The average income of a physician is less than that of a specially qualified factory worker; there is very little private practice now, the normal positions being filled by appointments. Though the law strictly forbids the accumulation of positions, yet about 15,000 physicians have two positions and two incomes, and about 3,000 physicians have three and even more positions. For financial and social reasons, physicians do not go to the country, so there is an excess of physicians in cities, where the ratio of physicians to inhabitants is 17.6 to 10,000; in villages it is only 0.98. Only 3 per cent of physicians are members of the communist party. This is attributable to the fact that only 9.5 per cent of the physicians originate from the working class.

It is interesting how the staffs of scientific and research institutes are made up. Among 3,347 directors, 1,549 of them were on duty before the Russian revolution. Of all the directors, 13 per cent come from the working classes, but only 38 per cent of them are members of the communist party. Even among the directors appointed in 1931, only 42 per cent are members of the party. Out of 27,300 assistants, only 5.1 per cent come from the working classes and only 8.7 are members. Even in the coming generation, the juniors come from the late civilian classes, and only 23 per cent of them were born from working families and only 55 per cent of them are members of the communist party.

Dr. Raduceanu told some interesting things about the social composition of a bolshevist city. Among the 2,780,000 inhabitants of Moscow, there are 1,660,000 able bodied men. Of these, 40 per cent are workers, 26 per cent employees, 10 per cent clerks and 6 per cent independents (small merchants, language teachers, laundry women, cabmen and the like), and the remaining 18 per cent carrying on diverse professions. In the relatively new city Stalingrad, in which the general administration is a bit looser, 61 per cent of all able bodied men are workmen, and only 16 per cent are employees, 8 per cent minor clerks and 3 per cent independents. Stalingrad, which is inhabited by 300,000 people, has developed almost wholly since the war.

The specialists—the most important class of workmen of the Soviet Union—are classified by the statistics according to their social origin: 24.3 per cent of them come from the laboring class, and only 13.3 per cent are members of the communist party.

Abortion and Rumanian Wives

About a fortnight ago, the National Association of Rumanian Wives held a convention in Jassy, where the presiding officer proposed that the convention declare that they deem permissible the interruption of gestation from a moral, economic and healthful standpoint. Another member proposed that the convention approve a memorandum to the chamber of deputies asking the drafting of a bill which would require juries hearing abortion cases in court to be made up entirely of wives, because men are not capable of understanding the motives that ought to be considered in the arbitration of these criminal cases.

Precancerous Conditions

At the summer convention of physicians, Dr. Verebely defined precarcinosis to include developmental defects, chronic inflammation, excessive granulation—in some instances even normal granulation—and hypertrophy or new growths, in which cancer develops so often that it exceeds the percentage of coincidence. From the point of view of surgery, such changes in the skin make no problem whatever, because they are visible and their transformation into cancer may be observed at any time. The task is more difficult in connection with diseases of the oral cavity, and difficulty is still more enhanced in precarcinosis of internal organs, where gastric ulcer, gallstones, disorders of the colon, and the villous tumors of the bladder place the surgeon in a very difficulty position. A decision is extraordinarily difficult in cases of struma of the thyroid gland, and in certain diseases of the breast and submaxillary glands, which are fairly common starting points of cancer.

JAPAN

(From Our Regular Correspondent)

Aug. 15, 1932.

Movement to Modify the Abortion Law

A body of so-called new women who are always leading the van in questions concerning women, visited the home minister in the name of the Association for Reformation of the Abortion Law, in order to hasten the amending of the present law. They declare that the law, made fifty years ago, hardly complies with the need of the nation now and that an amendment is necessary. Their proposed bill would officially permit abortion in the following cases: (1) if conception was caused by violence, threat or fraud; (2) if it can be determined that the embryo is infirm, mentally or physically; (3) if the birth would be a menace to the livelihood of the whole family, destitute at the time; (4) in case of divorce. The authorities seem to believe that such a radical change has little hope of realization. The present law prohibits abortion, unless a physician proves it to be absolutely necessary for the mother's health. Nevertheless, under financial depression and a surplus of population, criminal abortion is done secretly. A few weeks ago the department of home affairs notified the local governments to maintain strict supervision over advertisements of patent medicine, especially those which tempt women to commit criminal abortion. Difficult as it is, the reformation is thought to be only a matter of time.

Identification of Blood of Man

Dr. Keno Kaji of the legal medicine department of the Tokyo Imperial University has found a method of differentiating human blood from that of other animals. In his new method, he extracts the hemoglobin and injects it into a rabbit, the serum of which will make a milky deposit in human blood serum, while other human albumin, such as pus or nasal mucus, never shows such a phenomenon. Further, animal albumin, such as the hemoglobin of a horse, cow or dog, also remains transparent when it is put in this serum.

Personals

Prof. I. Kubo of the Kyushu Imperial University, Department of Otorhinology, celebrated his twenty-fifth year as a professor in this institute; more than 200 of his friends attended.

Dr. S. Ueno, director of the Japan Medical Association, died of septicemia on June 12, at the age of 60. While operating on a patient of the health insurance, he was wounded by the sharp end of a bone when the patient moved during the operation. Blood poisoning developed and he died.

Prof. M. Nishibe of Niigata Medical University, a celebrated authority on tsutsugamushi disease, is dead. His life was dedicated to research on this disease, of which he, at last, died, June 13, aged 41. While a student in the Tokyo Imperial University he was said to have been most diligent, and his grade in every subject on leaving there was over 96, a record in the institute.

Viscount Kiyoura, the elder statesman, was unanimously elected president of the Japan Antileprosy Association, succeeding the late Viscount Shibusawa.

After the assassination of the ex-premier, a plot against the present prime minister was discovered. Among the assassins was Dr. Y. Imamaki, a practitioner in Tokyo who holds the high title "Igakuhakushi." This made a sensation in medical circles. He is reported to have been the family physician to one of the leaders of the nationalist union.

Dr. T. Tomioka of the Kyoto Imperial University was chosen as the first student to be sent to France at the invitation of the French government, which gives a Japanese student thus invited 2,400 francs a year for two years.

The Impoverished Villages and Practitioners

The condition in villages has had a great influence on practitioners. The matter can hardly be left to take its own course. In Tokyo, although the charity hospitals and the so-called pay clinic enjoy a large practice, ordinary practitioners have little to do. Practitioners in the country have only 3 or 4 per cent of their medical fees paid. Their financial condition is now almost intolerable. Some are said to be unable to send their children to schools. Furthermore, patients are inclined to prefer going to the apothecaries for medicine instead of consulting physicians. When a patient goes to the doctor, he seldom continues his visits, even if he is ill. Thus he is left without any means of treatment. This condition among patients both in towns and in villages is under consideration by the government. The present session of the diet is discussing relief bills for the impoverished villages. If the bills pass, a large sum of money will be expended on public works to be done in the villages. The government intends to continue such relief work for three years if the diet passes the bills. The country practitioners are therefore looking forward to relief. Some factory owners have proposed to the Japan Medical Association a reduction in the rate of health insurance. In the coming conference of practitioners in the northeastern provinces, one of the subjects for discussion is to be a resolution to the government that medical fees should be paid to them in full, with the assistance of the government, in recognition of their daily risking their lives for the welfare of the nation.

Marriages

NORMAN WALTER FILE, Lynchburg, Va., to Miss Julia Blythe White of Alexandria, at New York, September 7.

EDMUND DUMAS MILLS, Beaumont, Texas, to Miss Clara Mildred Myers of Lake Charles, La., September 30.

HAROLD PERLEY FREEMAN, West Somerville, Mass., to Miss Marjorie Weston Parker of Winchester, August 2.

JOHN ROBERT COBB to Miss Louise Wealthy Tower, both of New Haven, Conn., September 3.

JOHN J. SWEENEY, Doylestown, Pa., to Miss Alyce Finlaw of Woodbury, N. J., September 19.

CARL F. MOATS, Fort Wayne, Ind., to Miss Audrey C. Sweet of Columbus, October 1.

JAMES J. KOLARS to Miss Irene Cooney, both of Le Center, Minn., in St. Paul, July 30.

EARL O. LATIMER, Chicago, to Miss Mildred Neal of Rockford, Ill., September 25.

DOUGLAS N. GIBSON to Miss Marcella Powell, both of Des Moines, Iowa, July 23.

Deaths

Theodore Tieken ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; Ingals clinical professor of medicine, Rush Medical College; attending physician to the Cook County Hospital, 1906-1924; attending physician to the Presbyterian Hospital; consulting physician to the Norwegian-American, Washington Boulevard, Durand, Garfield Park and Columbus hospitals; governor of the Institute of Medicine of Chicago; aged 66; died, October 15, of coronary thrombosis.

Frederick T. Rogers, Providence, R. I.; University of the City of New York Medical Department, 1882; member and past president of the Rhode Island Medical Society; member of the House of Delegates of the American Medical Association, 1918-1921; formerly surgeon to the department of diseases of the eye, Rhode Island Hospital, consulting ophthalmologist and aurist to the Providence Lying-In Hospital, Pawtucket (R. I.) Memorial Hospital, Woonsocket (R. I.) Hospital and the Charles V. Chapin Hospital; aged 73; died, August 23, in Warwick, of angina pectoris.

William Edward Wright ⊕ Harrisburg, Pa.; University of Maryland School of Medicine, Baltimore, 1888; member of the American Psychiatric Association; past president of the Dauphin County Medical Society; on the staffs of the Harrisburg State Hospital and the Harrisburg Hospital; aged 63; died, August 30, of cerebral hemorrhage.

Samuel Paul Taylor ⊕ Los Angeles; University of Pennsylvania School of Medicine, Philadelphia, 1919; member of the Medical Society of the State of Pennsylvania; fellow of the American College of Surgeons; formerly on the staff of the Altoona (Pa.) Hospital; aged 38; died, August 26, at San Diego, Calif., of cerebral hemorrhage.

Francis J. Antoine ⊕ Prairie du Chien, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; health officer of Prairie du Chien; formerly mayor; medical director of the Old Sanitarium and Hotel Rosencrans; aged 55; died, September 15, of angina pectoris, following influenza.

Daniel Coll, Susanville, Calif.; Stanford University School of Medicine, San Francisco, 1923; member of the California Medical Association and the Nevada State Medical Association; served during the World War; county health officer; on the staff of the Riverside Hospital; aged 36; died, August 30, of hemorrhage due to gastric ulcer.

Robert Evans, Fort Dodge, Iowa; Detroit College of Medicine, 1888; member of the Iowa State Medical Society; past president of the Webster County Medical Society; fellow of the American College of Surgeons; on the staff of St. Joseph Mercy Hospital; aged 75; died suddenly, September 16, of heart disease.

Walter Newman Ramey ⊕ Lincoln, Neb.; Eclectic Medical Institute, Cincinnati, 1903; on the staffs of the Bryan Memorial Hospital, Green Gables, Dr. Benjamin F. Bailey Sanatorium and St. Elizabeth's Hospital; aged 66; died, in September, of pneumonia, influenza and intestinal obstruction.

James Manara Rector ⊕ Columbus, Ohio; Ohio Medical University, Columbus, 1903; fellow of the American College of Physicians; veteran of the Spanish-American War; aged 55; for twenty-five years on the staff of the Grant Hospital, where he died, September 17, of cerebral hemorrhage.

John Newton Thomas, Alexandria, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1886; member of the American Psychiatric Association; formerly superintendent of the Central Louisiana State Hospital; aged 72; died, September 19, of diabetes mellitus.

Henry Charles Walker, Alliance, Neb.; State University of Iowa College of Medicine, Iowa City, 1925; member of the Nebraska State Medical Association; served during the World War; on the staff of St. Joseph's Hospital; aged 39; died, September 6, of cerebral hemorrhage.

Daniel Eugene Gillon, Shinglehouse, Pa.; Georgetown University School of Medicine, Washington, D. C., 1929; member of the Medical Society of the State of Pennsylvania; aged 27; died, July 26, in the Port Allegany (Pa.) Hospital, of acute dilatation of the heart.

Albert J. Frantz ⊕ Seneca Falls, N. Y.; Detroit Medical College, 1871; past president of the Medical Society of the County of Seneca; aged 82; died, September 19, in the Clifton Springs (N. Y.) Sanitarium, of diabetes mellitus and cardiac decompensation.

James Walter Crews, Rochester, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1902; member of the Medical Society of the State of New York; for many years health officer of Pittsford; aged 58; died suddenly, September 20, of heart disease.

John W. Mobley, Milledgeville, Ga.; University of Georgia Medical Department, Augusta, 1894; for many years on the staff of the Milledgeville State Hospital; aged 61; died, August 15, in the University Hospital, Augusta, of suppurative retroperitoneal lymphadenitis.

Austin Montgomery Lindley, Urbana, Ill.; Cincinnati College of Medicine and Surgery, 1880; member of the Illinois State Medical Society; for many years president of the board of health of Urbana; aged 76; died, September 13, of carcinoma of the intestine.

Thomas Jay Vanderhoof ⊕ Scottsbluff, Neb.; Lincoln Medical College of Cotner University, 1908; past president and secretary of the Scottsbluff County Medical Society; served during the World War; aged 48; died, September 1, of Hodgkin's disease.

William Avin Porter, Higginsville, Mo.; Medico-Chirurgical College of Kansas City, Mo., 1903; member of the Missouri State Medical Association; aged 69; died, July 2, in the State Hospital, number 1, Fulton, of chronic myocarditis.

James Edgar Moore, Mount Olive, N. C.; Tennessee Medical College, Knoxville, 1900; member of the Medical Society of the State of North Carolina; aged 61; died, September 16, of cerebral hemorrhage.

Earl G. McLaughlin, Gladewater, Texas; Eclectic Medical Institute, Cincinnati, 1907; aged 48; died, September 1, in a hospital at Longview, of septic endocarditis and acute yellow atrophy of the liver.

William S. Gilbert, Wheaton, Ill.; Hahnemann Medical College and Hospital, Chicago, 1893; aged 63; died, August 26, in the Community Hospital, Geneva, of postoperative shock and pyloric obstruction.

William H. Doane ⊕ Rochester, N. Y.; Chicago Homeopathic Medical College, 1889; on the staff of the Highland Hospital; aged 65; died, September 16, in Paso Robles, Calif., of angina pectoris.

Jacob Eugene McMichael, New York; University of Buffalo School of Medicine, 1884; aged 80; died, August 31, of pneumonia, as the result of a fracture of the hip received several weeks previously.

Harry Arthur McDaniel ⊕ Bonham, Texas; Memphis (Tenn.) Hospital Medical College, 1901; on the staff of the S. B. Allen Memorial Hospital; aged 55; died, July 17, of angina pectoris.

Prospero Hector De Gregori, Brooklyn; Long Island College Hospital, Brooklyn, 1896; aged 55; died, August 22, in the Ruptured and Crippled Hospital, of coronary thrombosis and influenza.

Ransom T. Castleberry, Ada, Okla.; Physio-Medical College of Indiana, Indianapolis, 1899; member of the Oklahoma State Medical Association; aged 76; died, July 17, of interstitial nephritis.

William Riley Hosick, Granville, Ohio; Medical College of Ohio, Cincinnati, 1887; member of the Ohio State Medical Association; aged 73; died, September 20, of abscess of the gallbladder.

Albert Gallatin Donoho, Jr., Hartsville, Tenn.; University of Nashville Medical Department, 1897; veteran of the Spanish-American War; aged 56; died, August 30, of cirrhosis of the liver.

Charles W. Burtz, Acworth, Ga.; Atlanta College of Physicians and Surgeons, 1903; member of the Medical Association of Georgia; aged 61; died, September 18, of cerebral hemorrhage.

William Ray Dodson, Los Angeles; College of Medical Evangelists, Los Angeles, 1929; on the staff of the Los Angeles County General Hospital; aged 28; died, September 10, of pneumonia.

John G. Noland, Berea, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1888; aged 79; died, September 9, of chronic prostatitis.

Jesse Havis Riley ⊕ Perry, Ga.; University of Georgia Medical Department, Augusta, 1907; aged 62; died, August 22, in a hospital at Macon, of myocarditis, nephritis and arteriosclerosis.

Paul Louis Reiss ⊕ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1890; aged 64; died, September 12, of myocarditis, nephritis and diabetes mellitus.

Sidney Henry Mann, Birmingham, Ala.; Birmingham Medical College, 1901; member of the Medical Association of the State of Alabama; aged 58; died, September 15, of heart disease.

Jay H. Miller, Wauseon, Ohio; Hospital College of Medicine, Louisville, 1888; member of the Ohio State Medical Association; aged 69; died, September 8, of coronary thrombosis.

John Corbin Pierson ⊕ Hartford, Conn.; Tufts College Medical School, Boston, 1903; aged 58; died, September 9, in West Hartford, of cerebral hemorrhage and arteriosclerosis.

Anthony Jacob Tananewicz, Chicago; Chicago College of Medicine and Surgery, 1914; aged 46; was found dead, September 21, of chronic nephritis and cardiac insufficiency.

Adolph Schoen ⊕ New York; University and Bellevue Hospital Medical College, New York, 1899; aged 53; died, September 5, of angina pectoris and coronary occlusion.

Henry Charles Valentine ⊕ Lexington, Mass.; University of Michigan Medical School, Ann Arbor, 1892; aged 69; died, August 12, of chronic myocarditis and arteriosclerosis.

Ira H. Pardee, Ashtabula, Ohio; Pulte Medical College, Homeopathic, Cincinnati, 1889; formerly mayor of Ashtabula; aged 73; died, September 3, of cerebral embolism.

Rudolph Preussner Lenz, Corpus Christi, Texas; University of Texas School of Medicine, Galveston, 1920; aged 35; died, July 1, of acute gastritis and heart block.

Louis Mark Cusher, Edinburg, Texas; Miami Medical College, Cincinnati, 1905; served during the World War; aged 62; died, September 12, of coronary sclerosis.

St. David Gynlais Walters, San Francisco; L.R.C.P. and L.R.C.S., Edinburgh, Scotland, 1881; aged 76; died, August 22, in the Franklin Hospital, of arteriosclerosis.

Samuel Vivden Young, El Paso, Texas; University Medical College of Kansas City, Mo., 1888; aged 67; died, September 13, of chronic myocarditis and nephritis.

Charles Gustave Bacon, Marshall, Minn.; Laval University Faculty of Medicine, Quebec, Que., Canada, 1889; aged 65; died, in August, of cardiorenal disease.

Edward Dorr Harper, Indianapolis; Columbus Medical College, 1889; served during the World War; aged 66; died suddenly, August 26, of angina pectoris.

J. Welton Johnston, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 73; died, August 29, of cirrhosis of the liver.

James Hudspeth Maupin, Rowlett, Texas; Barnes Medical College, St. Louis, 1898; aged 60; died, September 10, in a sanatorium at Dallas, of carcinoma.

Henry P. Stipp, Lakeport, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1876; aged 79; died, July 27, of nephritis, cystitis and prostatitis.

James M. Thompson, Robstown, Texas; Memphis (Tenn.) Hospital Medical College, 1904; aged 55; died, August 7, at the Spohn Hospital, Corpus Christi.

Elizabeth Cheatham Fairbanks, Pelee Island, Ont., Canada; Hahnemann Medical College and Hospital, Chicago, 1893; aged 73; died in September.

Douglas Edwin Hansen ⊕ Nehawka, Neb.; University of Nebraska College of Medicine, Omaha, 1929; aged 28; was accidentally drowned, August 12.

Miles Berrien Cope, Port Royal, S. C.; University of Georgia Medical Department, Augusta, 1890; aged 66; died, August 1, of diabetes mellitus.

Charles Marion Fulton ⊕ Kansas City, Mo.; Kentucky School of Medicine, Louisville, 1883; aged 74; died, August 24, of heart disease.

William Allen DeVaul, Kent, Ohio; Starling Medical College, Columbus, 1890; aged 72; died, August 12, of carcinoma of the liver.

Jeff D. McConnell, Providence, Ky.; University of Louisville School of Medicine, 1890; aged 70; died, September 3, of arteriosclerosis.

James G. McElroy, Portland, Ore.; Rush Medical College, Chicago, 1874; aged 92; died, August 4, of carcinoma of the sigmoid.

Mary Mullen, St. Louis; American Medical College, St. Louis, 1906; aged 67; died, July 26, of aneurism.

Correspondence

CORPORATIONS IN MEDICAL PRACTICE

To the Editor:—I am in entire sympathy with your attack on commercial corporations that enter the field of medical practice for private profit and without respect for medical traditions and standards. Some such organizations exist in a few states and, although fortunately small at present, illustrate how the entrance of a commercial middleman into the business of providing medical service pinches the doctor on the one side and milks the patient on the other. I have been continously opposed to the entrance into medical service of organizations formed for private profit, and, having acted for two years as chairman of the Medical Advisory Board of the Public Health Institute of Chicago, I might add that one of the reasons Dr. Berkowitz' connection with that organization was severed was his insistent desire that it be transformed into a corporation for profit instead of remaining as it is, a nonprofit institution, organized like many well known hospitals.

I think something should be said of the important place which the nonprofit organization holds in medical service. The clinics and the hospital medical centers referred to in your editorial as significant developments in medical practice are examples of several thousand corporations in the United States which are not for profit, which are usually managed and financed by a board of public spirited laymen and which function through the cooperation of the medical staff appointed by the board of trustees. These agencies represent an organized cooperation between the profession and the public; they are found everywhere in the United States, furnishing curative or preventive medical services, to bedridden or to ambulatory patients. Most of these are corporations, but these nonprofit corporations should be carefully distinguished from the commercial type, the dangers of which you justly condemn. The place of the nonprofit corporation in medical service has been throughly recognized by law, and the distinction is clearly made between these and commercial corporations engaging in the practice of medicine as such.

Your editorial gives friendly testimony that changes in the forms of medical practice will take place as the result of altered conditions in the profession and in economic life. Leaving aside public complaints about the uneven and uncertain costs of sickness and public demand for remedies, the figures of physicians' incomes just collected by the American Medical Association and other agencies may well take hold of every member or lover of the profession. Even in our last prosperous year, 1929, some 40,000 physicians in private practice had less than $2,500 to live on. What the income of these physicians is today, heaven and their wives know! Does not the situation call for steps which on the one side will increase the willingness and ability of the average family to pay for medical care, and which on the other will render the income of the average physician more adequate and more stable?

MICHAEL M. DAVIS, Julius Rosenwald Fund, Chicago.

To the Editor:—I read your editorial in THE JOURNAL, October 8, with interest and approval, but I could wish that you might later call attention to the fact that physicians themselves may not ethically make contracts based on their reputations and "farm" out the jobs on a percentage of returns.

Women of easy virtue have been known in their later years to employ younger and more attractive girls who prostitute on a percentage basis. Prostitution, unfortunately, is not confined to social delinquency. The prostitution of an honored profession is quite as distasteful to the virtuous and ethical as our social leaders find the selling of women.

I know your views are right and therefore do not hesitate to commend them.

C. M. ROSSER, M.D., Dallas, Texas.

UNITED MEDICAL SERVICE, INC.

To the Editor:—It is with extreme regret that we find our names in connection with the United Medical Service, Inc., and abhor the publicity resulting therefrom. We wish to inform you and our colleagues that we severed our connections with this organization in no unmistakable terms in writing on Jan. 13, 1931, less than a month after it was chartered, when we learned that the organization proposed to deviate from the ethical principles of our profession.

J. W. HARNED, M.D., and
W. L. KENNY, M.D., Chicago.

TRIBROMETHYL ALCOHOL OR ETHER BY RECTUM

To the Editor:—In THE JOURNAL, September 17, in the article on "Advances in Anesthesia from the Standpoint of the Anesthetist," by Lundy, is the statement: "Ether given by rectum is being replaced by tribromethyl alcohol (avertin) or tribromethyl alcohol and amylene hydrate. This seems to be an advance. When anesthesia is produced by ether given rectally, it is less easily controlled than when it is given by inhalation." Colonic ether is not being replaced by tribromethyl alcohol in New York and elsewhere. If an operation is expected to last not over an hour, tribromethyl alcohol is used. If the operation may last two hours or more, colonic ether is used.

As absorption of tribromethyl alcohol occurs more rapidly than the containing water (80 per cent in twenty minutes), it is not controllable as is oil-ether. There is less danger from every standpoint with oil-ether, and the anesthesia is more readily controlled than is ether by inhalation. Colonic anesthesia is under absolute control from its introduction to the completion of the operation, or full consciousness by, first, withdrawal of some of the mixture, thus lightening and also shortening the anesthetic or, if the patient is seemingly too deep and the operation is a long one, a hypodermoclysis may be given which will correct this state without shortening the anesthetic. If safety is a consideration, tribromethyl alcohol is not an advance on colonic anesthesia.

JAMES T. GWATHMEY, M.D., New York.

LYMPHOGRANULOMA INGUINALE

To the Editor:—I note that in the discussion of the article "Lymphogranuloma Inguinale" (THE JOURNAL, September 24, p. 1065) the remarks of Dr. J. V. Van Cleve, in closing the discussion, on page 1071, are in error. The sentence reads in this discussion: "The antigen used is an alcoholic one." This is incorrect.

The antigen should be prepared according to the method described in the article itself on page 1067. The antigen is prepared in normal saline solution.

H. N. COLE, M.D., Cleveland.

PLACENTAL FRAGMENT IN CERVICAL LACERATION

To the Editor:—In THE JOURNAL, July 16, in the section on Clinical Notes, Suggestions and New Instruments appears an article by Dr. Jack D. Parker, of Greenville, S. C., entitled "Placental Fragment Engrafted in Cervical Laceration."

It would appear from the reading of this case that the condition present was one probably of a placenta praevia cervicalis, in which the spur of placenta in the cervix had been left behind during the separation of the placenta proper. This remaining piece of placenta subsequently grew and caused hemorrhage, as described in Dr. Parker's paper. It appears that this explanation of the case is the more plausible; otherwise, many cases similar to Dr. Parker's ought to appear in practice.

M. MELVYN BERLIND, M.D., Brooklyn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WASSERMANN FAST SYPHILIS

1. *To the Editor:*—When can I know that a patient is what is called Wassermann fast? I have been treating a man almost constantly since May this year with bismuth compounds and neoarsphenamine. A check up as to control of treatment in July was four plus Wassermann and three plus Kahn; the same report this week. Would you give him sodium thiosulphate? This man had the initial lesion and primary eruption when I first saw him. Kindly advise as to future procedure. Please omit name.

M.D., Ohio.

2. *To the Editor:*—A patient giving no history of a primary lesion or secondary symptoms was treated for an infected finger, which failed to heal. A Wassermann test was reported very strongly positive. After two injections of neoarsphenamine, 0.45 and 0.6 Gm., respectively, the finger healed completely. In spite of vigorous antisyphilitic treatment in the form of arsenic, bismuth and mercury compounds over a period of fourteen months, the Wassermann reaction is still very strongly positive (neoarsphenamine, 0.6 Gm.; iodobismitol, mercuric succinimide). I presume this is a Wassermann fast case and would like the best accepted procedure in handling this type of case. M.D., California.

3. *To the Editor:*—A man, aged 36, a druggist, weighing 165 pounds (75 Kg.) and 5 feet 10 inches (178 cm.) in height, with no past illness or history of importance, in August, 1930, noticed a small sore on the head of the penis and consulted a physician at once. A blood test showed the Wassermann reaction to be one plus and the Kahn reaction four plus. Treatment was started at once with sulpharsphenamine given twice weekly. The dose was large sixes and nines. Twelve doses were given. A blood test at this time showed the Wassermann and Kahn reactions to be both four plus. He was next given twelve doses of sodium bismuth thioglycollate and then twelve more of sulpharsphenamine. These two drugs were given alternately for the rest of 1930 and first half of 1931. Repeated blood tests during this time showed Wassermann and Kahn reactions both four plus. During the latter part of 1931, sulpharsphenamine bismuth, neoarsphenamine and some mercury, both in muscle and in vein, were constantly given. The patient came to me in October, 1931, having at that time a small sore on the head of the penis which he states with positiveness was just like the one he had when treatment was started and the same as had recurred at least half a dozen times during the treatment, each time healing in about five days by applying Kerolysin. Blood tests gave four plus Wassermann and Kahn reactions. Doubting that the man had ever had syphilis, I gave him two courses of iodides, each time to saturation, and then ten doses intravenously of sodium thiosulphate. Blood examination at this time was unchanged, both Wassermann and Kahn reactions being four plus. I have just finished giving him six treatments with neoarsphenamine and six with iodobismitol and the blood picture is unchanged. Blood examinations of his wife have always been negative. Since the original blood examination, which was Wassermann one plus and Kahn four plus, the blood picture has never been changed the slightest—always four plus. Why the positive blood reaction? Has he now syphilis? What treatment is indicated? Please omit name.

M.D., Missouri.

ANSWER.—1. A patient is not considered Wassermann fast until he has been adequately treated for from one to two years and has had at least three courses of one of the arsphenamines conjointly or alternating with preparations of bismuth or mercury. There would seem to be no justification for the use of sodium thiosulphate. Future procedure might properly include a more varied therapeutic program including iodides by mouth, mercury by injection or inunction, and sulpharsphenamine bismuth.

2. This patient may have had a primary infection of the finger. This is apparently a Wassermann fast case, as the treatment has been intensive. There is no generally accepted procedure for a case of this type. Before labeling the case one of latent syphilis, the presence of an early cardiovascular involvement should be searched for and a routine spinal fluid examination should exclude asymptomatic neurosyphilis. Treatment should be continued with iodides, mercurial inunctions and bismuth-neoarsphenamine courses until the serologic reaction is reversed.

3. The recurring lesion may have been a chancre redux but in all probability with a history of repeated recurrences and healing in five days it was a herpes progenitalis. The blood is positive because the patient still has syphilis, either latent or inactive, or with a hidden cardiovascular or neurologic involvement. In view of the rather extended course of treatment he has had it might be advisable to give him longer rest periods and every six months a neoarsphenamine-bismuth course, with iodides in the intervals.

All three correspondents should consult the series of articles entitled "Cooperative Clinical Studies in the Treatment of Syphilis" now being published in the "Venereal Disease Information" bulletin issued monthly by the United States Treasury Department, Public Health Service, at Washington.

DIAGNOSIS OF POLIOMYELITIS

To the Editor:—In the progressive ascending type of anterior poliomyelitis with bilateral involvement of the extremities and the trunk are sensory changes common? Would an anesthesia of the involved area rule out a poliomyelitis? Please omit name and address.

M.D., South Dakota.

ANSWER.—If an acute ascending or Landry type of poliomyelitis is meant, loss of sensation is uncommon but there may be considerable pain and hyperesthesia. If the chronic type of slow degeneration of the anterior horn cells with slowly progressing atrophy and paralysis is referred to, no sensory disturbances would be expected as the condition would then be a disease of the motor system, usually called progressive spinal muscular atrophy. It is questionable whether a true chronic anterior poliomyelitis in the sense of an inflammatory process actually exists. In chronic cases with this motor picture the existence of considerable loss of temperature and pain sensation usually means that the case is one of syringomyelia in which the anterior horns are involved.

TESTS OF LIVER FUNCTION AND WATER TOLERANCE

To the Editor.—Can you tell me the technic of the Althausen insulin-dextrose tolerance test of function of the liver? Also the gelatin-water tolerance test of Mancke? Please omit name. M.D., Maryland.

To the Editor:—In THE JOURNAL, July 9, page 181, in an abstract on the early diagnosis of cirrhoses of the liver, there is mentioned the insulin-dextrose-water tolerance test according to Althausen and the gelatin-water tolerance test of Mancke. I have been unable to find these tests. Please give me these tests in detail or tell me in what book they may be obtained. W. G. SAUNDERS, M.D. Jackson, Tenn.

ANSWER.—The insulin-dextrose-water tolerance test as an index of metabolic activity of the liver is described by Althausen, Gunther, Lagen and Kerr in the *Archives of Internal Medicine* (**46**:482 [Sept.] 1930) as follows: In the morning, with the patient fasting, a specimen of the blood was taken for sugar determination followed by an injection of 20 units of insulin. Twenty minutes later, 50 Gm. of dextrose dissolved in 500 cc. of water was given to the patient by mouth followed by 1,000 cc. of water also administered by mouth. After this two samples of blood were taken at intervals of thirty minutes and two more at intervals of one hour. In cases in which insulin reactions developed during the test, the last sample of blood was taken at the time of the reaction regardless of schedule, and the patient was treated for hypoglycemia in the usual way. Previous to the test the patients were kept on a general hospital diet for a period of at least several days.

In persons without evidence of hepatic disease the blood sugar content rises during the first hour of the test and then gradually declines, until at the end of three hours it is again near the level maintained during fasting. In patients with clinical evidence of hepatic insufficiency, blood sugar curves following the test were irregular; one of the curves shows marked hyperglycemia before the terminal hypoglycemia is reached and in the other there is an uninterrupted falling off of the blood sugar level during the entire duration of the test. However, all such abnormal curves have in common the eventual low blood sugar level, usually accompanied, as would be expected, by insulin reactions.

The conclusion from this was that terminal hypoglycemia under the conditions of the test meant injury of the liver. The question immediately arose as to the dividing line between the normal and the abnormal. After clinical study and comparison with other liver function tests, principally the rose bengal dye excretion test, it was decided to place it in the vicinity of 70 mg. of sugar per hundred cubic centimeters of blood.

Mancke's gelatin tolerance test has been described by Mancke (*München. med. Wchnschr.* **78**:1430 [Aug. 21] 1931) and also by Mancke and Rohr (*Deutsches Arch. f. klin. Med.* **172**:260 [Dec. 21] 1931). The technic is as follows: Three days before, as well as during the test, the patient receives a diet that is deficient in protein. On the day preceding the test, beginning with 8 a. m. and ending the following day at 8 a. m., the urine is collected, its quantity is determined, and 25 cc. is preserved for analysis. In the evening of the same day the patient is given 1 liter of water. On the day of the test the gelatin drink is given at 8 a. m. and after this is taken the patient drinks 0.5 liter of water. The gelatin drink is prepared by placing 50 Gm. of gelatin in cold water for ten minutes. Then this water is poured off and the gelatin is dissolved in warm water and flavored with either raspberry juice or lemon. After it is cooled off but while it is still fluid, 0.5 liter is given. The urine of the test day is collected

in four portions, the first between 8 a. m. and noon, the second between noon and 4 p. m., the third between 4 p. m. and 8 p. m., and the fourth between 8 p. m. and 8 a. m. of the following day. The quantities eliminated in each period are determined and 25 cc. of each retained for analysis. The amino nitrogen in the urine is determined according to Folin's method. Mancke and Rohr, in comparing the results of the insulin-dextrose-water tolerance tests and of the gelatin tolerance test, state that in normal persons the elimination of the amino nitrogen goes parallel with the quantity of urine. The concentration of the urine remains constant within comparatively narrow limits. Following a gelatin-water tolerance test there is a slight increase in the concentration, as an expression of the low alimentary hyperamino-aciduria of the normal person, but during the corresponding water tolerance test the concentration of the urine remains practically constant. The average concentration of the amino nitrogen in the urine of the normal person is, when determined according to Folin's method, about 25 mg. per hundred cubic centimeters, and after the gelatin-water tolerance test it increases to 28 mg. In icterus catarrhalis gravis there is often a spontaneous hyperamino-aciduria, and besides this a marked alimentary hyperamino-aciduria can be produced by the getalin-water tolerance test. In cases of minor severity, without an increase in the amino nitrogen of the urine, there develops following the tolerance test likewise a marked hyperamino-aciduria. Gradual differences can be demonstrated between these cases of icterus and acute atrophy of the liver. In the various forms of cirrhosis of the liver, without manifest stasis of the portal vein, there exists alimentary hyperamino-aciduria, which, corresponding to the developmental stage of cirrhosis, varies in severity.

ISHIHARA TEST FOR COLOR VISION

To the Editor:—Please explain the Ishihara test for vision, and the method of making the test and recording the observations. I am in need of this information as soon as possible.

B. E. CRAWFORD, M.D., Chamberlain, S. D.

ANSWER.—The Ishihara test is for color vision and not visual acuity. It consists of a series of plates composed of round dots of various sizes and various colors. Throughout these are arranged dots of the color that is to be tested for. For example, the background dots in the first plate are of a neutral gray and scattered through these are red dots that form the numbers 1 and 2. As the plates progress (up to 16), the colors of the background dots and the number dots approach each other more closely in tint, making recognition more difficult. As the colors are varied, each type of daltonism can be tested for and an approximation of the degree arrived at. Of course, the tests must be carried out in good daylight. The responses are recorded according to the rapidity of recognition and the plate numbers. The plates and accompanying description are published in English in Japan by Kanehara, whose United States agent is C. H. Stoelting & Co. of Chicago.

SUPERINFECTION IN SYPHILIS

To the Editor:—Is it possible for an individual with a positive blood Wassermann reaction to contract an entirely new infection with spirochetes? If such thing is not possible, will you please give the mechanism of this immunity or resistance? Please omit name.

M.D., Pittsburgh.

ANSWER.—A new infection with Spirochaeta pallida is possible despite the presence of an active syphilitic lesion and of a positive complement fixation test for syphilis. The term superinfection is applied to such an occurrence by syphilologists, while reinfection means a new syphilitic infection after the old one was cured clinically as well as serologically. According to the modern conception, a positive Wassermann reaction means the presence of spirochetes in the body. A new infection with spirochetes in the presence of a syphilitic lesion and therefore in the presence of a positive Wassermann reaction has been many times produced experimentally in the monkey, the rabbit, and even in man, and clinical observation has recorded such happenings in patients. As a rule, in case of superinfections the local skin or mucosal lesion is of the type that is characteristic for the stage of the disease in which the patient happens to be. Only rarely does a true indurative primary lesion develop in secondary or tetiary syphilis.

Knowledge of the mechanism of immunity in syphilis, limited as it is, throws some light on the nature of such superinfections. According to Neisser and his followers, no immunity develops as a result of a syphilitic infection, but a change in the reactivity of the tissues, mainly of the skin, a so-called anergy, owing to which no reaction takes place when new spirochetes are introduced into the organism already infected with syphilis. Such a type of resistance was designated immunity of infection; i. e., an immunity only in the presence of a focus of infection somewhere in the body. Such anergy was considered relative and not absolute; a superinfection could occur at any stage of the disease. After the patient was completely cured he could be reinfected with syphilis, with the production of a primary lesion, of regional glandular involvement, and of a systemic invasion.

According to recent investigations the development of some immunity, though of a limited amount, is accepted by many. This immunity is not always sufficient to protect the patient against a new infection. The latter depends, among other factors, also on the relation of the new strain of spirochetes to the old one and on the number of the reinfecting microorganisms. It was also definitely established that a generalized syphilitic invasion may result without the production of a local reactive infection at the site of entrance. The local immunity of the skin may be sufficient to prevent the latter but be unable to prevent a general invasion, which may or may not give clinical manifestations.

URETHRITIS AND ARTHRITIS

To the Editor:—Kindly outline the best treatment for a case of stubborn, apparently simple, urethritis complicated with arthritis. I have examined seven smears for gonococcus and only pus was found. Please omit name.

M.D., New York.

ANSWER.—Persistence of urethritis is based on three factors: extensive involvement of the glands in the urethral floor, submucous infiltrations, and concomitant infection of the prostate and seminal vesicles. The penile urethra should be massaged over an introduced steel sound, each such instrumentation to be followed by the instillation of some weak silver salt solution. The accompanying prostatitis and vesiculitis is attended to by systematic massage while the bladder is distended either by urine or an indifferent fluid injected previously to the massage. The expressing of the prostatic and seminal contents is followed by evacuation of the bladder and instillation of a silver-salt solution into the posterior urethra. The inflammatory changes in the prostate and vesicles are favorably influenced by the administration of medical diathermy by the rectal route. In order to combat the arthritic complication, protein therapy by intradermal injection is administered. The patient's blood or defattened milk furnish as a rule satisfactory results without producing an undesirable general reaction.

BLOOD IN SEMEN

To the Editor:—For the past three months, during which time I have not had intercourse, I have had a nocturnal emission once each month. In each instance there was mixed with the ejaculated fluid a dark colored material which, on microscopic examination, showed the presence of red blood corpuscles in such numbers that one could not count them. As far as I can ascertain, I am in perfectly good health. My age is 52. I sleep well. I am not overworked. My appetite is good and my digestion is such that I eat anything I care to without having any trouble arise from it. My bowels move daily without my having to give them a thought, as far as taking as much as even a laxative is concerned. My blood pressure is 126 systolic and 78 diastolic, the weight 185 pounds (84 Kg.) and the height 69 inches (175.3 cm.). I have no aches or pains, not even a slight discomfort of any sort. I drink a glass of wine occasionally and smoke moderately. My urine, which is normally acid and with a specific gravity of 1.018, shows neither albumin nor sugar. I have never had any venereal disease. In the interval between the years 1915 and 1925 I had five or six attacks of renal colic due to the passage of a small stone. Roentgen examination in 1925 revealed the presence of a small stone in the right ureter just at the point at which it passes over the crest of the ilium. It has never passed nor have I heard anything from it during these years. Frequent examinations of the urine during the past seven years have revealed no abnormal conditions. Recent rectal examination accompanied by prostatic massage failed to reveal any abnormal secretions even after milking the urethra. No tenderness was elicited on pressure. Though the physician said there was what one might refer to as only mild enlargement of the prostate, its consistency was normal with the exception that the vesicular areas were somewhat soft. I shall appreciate any information you may give me relative to this irregularity regarding its cause, significance, treatment and the prognosis. Please omit name and city.

M.D., Mississippi.

ANSWER.—By far the largest number of cases of bloody semen are due to a marked congestion or the presence of granulations or polypi in the prostatic urethra, especially about the verumontanum. The diagnosis can be made by an inspection through any one of the modern cysto-urethroscopes. The treatment consists in direct application of 5 per cent silver nitrate to the pathologic area once a week, till the parts have become normal.

There is another form, which is fortunately rare, in which the blood comes from the seminal vesicles themselves. In this form the blood is more evenly mixed with the seminal fluid. As a rule this form is quite harmless unless due to carcinoma (an exceedingly rare condition). But little can be done by way of treatment. Such a case was followed for many years, and the patient continued in perfect health, and all his sexual functions remained absolutely normal, but the bloody semen was not influenced by any treatment. Of course, the ejaculatory ducts could be cauterized or a Belfield operation done, and by either of these ways one may wash out the seminal vesicles; but such drastic procedures are not generally advised for the complaint described.

"MISSED ABORTION"

To the Editor:—I have a primipara, aged 26, whose estimated confinement is quite soon. At present the uterus and fetus are about the size of a four and one-half months' pregnancy. The patient felt life about four months ago but has not since. A roentgenogram shows the fetus in the midline. The uterus is of uniform enlargement. There are no signs or symptoms of toxemia. Would you attempt a therapeutic abortion at the time of the expected confinement or before that time? What are the prospects for a fixed placenta necessitating a hysterectomy? Please omit name. M.D., Ohio.

ANSWER.—This is a case of missed abortion. Since the diagnosis is obvious and there has not been any attempt at a spontaneous expulsion of the fetus and placenta, it is advisable to empty the uterus without delay. Usually in these cases the musculature is firm and the uterine activity is sluggish. Medical induction of uterine contractions by means of castor oil, quinine and pituitary preparations are practically useless and some mechanical or operative intervention is necessary. In the hands of an experienced operator, the simplest and cleanest procedure is an anterior vaginal hysterotomy. This permits evacuation of the uterus at one sitting and is a clean surgical operation. If one is not skilled in surgical obstetrics it is best to dilate the cervical canal with Hegar dilators sufficiently to permit the introduction of a Voorhees or Barnes colpeurynter having a diameter of about 8 cm. The latter should be filled with sterile water. This foreign body will usually initiate uterine contractions within a few hours. If it does not, it is advisable to administer a few small doses of quinine and perhaps also two or three hypodermic injections, each containing about two or three drops of pituitary extract. After the bag is extruded, the fetus and placenta may be expelled spontaneously. If not, they must be removed manually. Since the fetus has been dead for four months it may be mummified and hard at the present time. Therefore, sufficient dilatation of the cervix should be secured before an attempt is made to remove the fetus. A hysterectomy is not necessary even if the placenta should be adherent. In cases of missed abortion the placental blood vessels are usually thrombosed and there need be no fear of severe hemorrhage should manual removal of the placenta be necessary. Pituitary extract and ergot should be given after the uterus has been emptied.

CALCIUM OXALATE STONES IN URINE

To the Editor:—I have a patient who has passed calcium oxalate stones on several occasions. Apart from the drinking of distilled water, are there any dietary or hygienic measures that can be taken to prevent others from forming? Please omit name. M.D., Georgia.

ANSWER.—One of the most important measures in the treatment is dietary restriction. Foods rich in oxalates (spinach, potatoes, beans, endive, tomatoes, plums, dried figs, strawberries, cocoa, chocolate, tea) should be avoided. Foods containing oxalic acid (bread, meat, liver, sweetbreads, cereals) should be eaten only in small quantities. The diet may include milk, cheese, eggs, butter, other fats, rice cabbage, cauliflower, asparagus, mushrooms, apricots, grapes, melons and all fruits and vegetables except those known to be rich in oxalates.

DESENSITIZATION TO RAGWEED PLANT

To the Editor:—1. Are the stalk and leaf of the giant ragweed plant in any way harmful to man if taken by mouth? 2. Has desensitization to a pollen ever been produced by the use of an extract made up of the rest of the plant only? HUGH MACDONALD, M.D., Evanston, Ill.

ANSWER.—1. No.

2. No. Desensitization has been attempted by hypodermic and oral administration of extracts of the whole ragweed plant, including the blossom (Curtis, H.; *New York M. News* **13**:16, 1900). The method was evidently not successful, as it has not been used by other allergists.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Milwaukee, June 12. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *General, oral and clinical.* Los Angeles, Dec. 7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

ARKANSAS: *Basic Science.* Little Rock, Nov. 7. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 8-9. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 8. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Little Rock, Nov. 8. Sec., Dr. Allison A. Pringle, Eureka Springs.

CONNECTICUT: *Regular.* Hartford, Nov. 8-9. *Endorsement.* Hartford, Nov. 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, Nov. 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

FLORIDA: Jacksonville, Nov. 14-15. Sec., Dr. William M. Rowlett, 706 Franklin St., Tampa.

KANSAS: Topeka, Dec. 8-9. Sec., Dr. C. H. Ewing, Larned.

MAINE: Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

NEBRASKA: Lincoln, Nov. 29-30. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, Nov. 7-9. Sec., Dr. Edward E. Hamer, Carson City.

NORTH CAROLINA: Raleigh, Dec. 5. Sec., Dr. B. J. Lawrence, 503 Professional Bldg., Raleigh.

OHIO: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Houston, Nov. 8-10. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 7-9. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke.

WEST VIRGINIA: Morgantown, Nov. 16-18. Sec., Dr. W. T. Henshaw, Charleston.

Wisconsin June Report

Dr. Robert E. Flynn, secretary, Wisconsin State Board of Medical Examiners, reports the written and practical examination held in Milwaukee, June 28-30, 1932. The examination covered 19 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and two candidates were examined, 93 of whom passed, one failed and 8 were conditioned. Eighteen physicians were licensed by reciprocity with other states and one physician was licensed by endorsement. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
University of Colorado School of Medicine	(1931)	84, 86
Loyola University School of Medicine	(1932)	83, 89
Northwestern University Med. School	(1932) 82, 82, 84, 84,	88, 88
Rush Medical College	(1932)	84, 85
University of Illinois College of Medicine	(1932)	83, 86
University of Louisville School of Medicine	(1931)	83, 91
Harvard University Medical School	(1931)	87
University of Minnesota Medical School	(1931)	82
Creighton University School of Medicine	(1931)	85
Columbia University College of Phys. and Surgs	(1931)	88
University of Pennsylvania School of Medicine	(1930)	84
Marquette University School of Medicine	(1932) 80, 81, 82, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 87, 87, 88, 88, 88, 88, 89, 89, 89, 90, 91	
University of Wisconsin Medical School	(1929) 84, (1931) 81, 83, 83, 83, 83, 84, 84, 84, 84, 84, 85, 85, 85, 86, 86, 87, 87, 87, 88, 88, 89, 89, 89, (1932) 85	81,

FAILED

College	Year Grad.	Per Cent
University of Wurzburg Faculty of Medicine	(1925)	56

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1910)	Illinois
Northwestern University Medical School	(1930)	Indiana
Rush Medical College	(1927), (1931, 3)	Illinois
State University of Iowa College of Medicine	(1931)	Iowa
University of Kansas School of Medicine	(1931)	Kansas
University of Louisville School of Medicine	(1930)	Kentucky
University of Minnesota Medical School	(1931)	Minnesota
Washington Univ. School of Med.	(1930) Missouri, (1931)	Iowa
John A. Creighton Medical College	(1920)	S. Dakota
Cornell University Medical College	(1928)	New York
Ohio State University College of Medicine	(1931)	Ohio
Marquette University School of Medicine	(1930)	Missouri
University of Wisconsin Medical School	(1929)	Missouri, (1931) Oklahoma

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
Harvard University Medical School	(1929)	N. B. M. Ex.

SUPPLEMENT TO LIST OF PHYSICIANS SPECIALIZING IN RADIOLOGY

The list contains additional names to the list published in THE JOURNAL, March 19, 1932, of those who have responded to the questionnaire, who have been found to comply with the "Essentials," and who have been recommended by the Council's advisers. Those who are still under consideration, and others who may apply, will, when accepted, be added in subsequent issues of THE JOURNAL.

The type of service is given opposite the name. "Radiology" under "Type of Service" always includes short wave therapy, also known as "deep therapy." The asterisk (*) on "roentgenology" indicates that short wave therapy is included.

The addresses were supplied by the Directory department of the American Medical Association.

ALABAMA

Name	Address	Type of Service
Birmingham		
Troje, Oscar R.	925, 43d St.	Radiology
Mobile		
Gravlee, I. M.	1252 Springhill Ave.	Radiology

ARIZONA

Tucson		
Hayden, Edward M.	Desert Sanatorium and Institute of Research	Diagnostic roent.

ARKANSAS

Hot Springs		
Favour, Richmond, Jr.	Army and Navy General Hospital	Roentgenology

CALIFORNIA

Glendale		
Ghrist, David M.	143 N. Brand St.	Radiology
Los Angeles		
Carter, Ray A.	1100 Mission Rd.	Roentgenology
Johnson, Clayton R.	1100 Mission Rd.	Diagnostic roent.
Liljedahl, Elmer N.	1241 Shatto St.	Roentgenology *
MacColl, Douglas R.	2826 S. Hope St.	Roentgenology *
Mare Island		
Perry, Wendell Holmes	U. S. Naval Hospital	Roentgenology
Oakland		
Mandeville, Frederick B.	434, 30th St.	Roentgenology *
Pasadena		
Chapman, John Frye	65 N. Madison Ave.	Roentgenology *
Sacramento		
Woolford, Joseph S.	926 Jay St.	Roentgenology
San Diego		
Whitehead, Ely L.	U. S. Naval Hospital	Roentgenology *
San Francisco		
Briggs, Rowland S.	Clay and Webster Sts.	Radiology
Leef, Edward	2361 Clay St.	Radiology
Levitin, Joseph	450 Sutter St.	Radiology
Rice Frank M.	2000 Van Ness Ave.	Roentgenology
San Jose		
Bullitt, James B.	241 E. Santa Clara St.	Roentgenology
San Pedro		
Keener, Harry Allison	U. S. S. Relief	Diagnostic roent.
Stockton		
McGurk, Raymond T.	242 N. Sutter St.	Roentgenology *

COLORADO

Denver		
Bouslog, John S.	227, 16th St.	Radiology
McCaw, William W.	Fitzsimons General Hosp.	Roentgenology *
Schmidt, Ernst A.	4200 E. 9th Ave.	Roentgenology

CONNECTICUT

Bridgeport		
Lockhart, R. Harold	144 Golden Hill St.	Radiology
Hartford		
Butler, Nicholas G.	50 Farmington Ave.	Roentgenology
Climan, Max	242 Trumbull St.	Diagnostic roent.
Waterbury		
Atkins, Samuel M.	111 W. Main St.	Roentgenology *

DISTRICT OF COLUMBIA

Washington		
Bierman, M. I.	1801 Eye St., N.W.	Diagnostic roent.
Carroll, William J.	% The Surgeon General, U. S. Army	Roentgenology *
Kellogg, Douglas S.	Walter Reed General Hosp.	Roentgenology *
Moore, John J.	Army Medical School	Roentgenology *

GEORGIA

Atlanta		
Moore, Harvard C.	Station Hospital, Fort McPherson	Roentgenology
Thomasville		
Collins, J. J.		Radiology

ILLINOIS

Name	Address	Type of Service
Chicago		
Case, James T.	180 N. Michigan Ave.	Radiology
Kaplan, Maurice I.	3837 W. Roosevelt Rd.	Radiology
Decatur		
Flinn, Fauntleroy	220 S. Webster St.	Radiology
Great Lakes		
Owen, J. P.	U. S. Naval Hospital	Roentgenology
Lincoln		
Hagans, Frank M.	400 Broadway	Radium therapy
Springfield		
Hilt, Lawrence M.	105 S. 5th St.	Roentgenology *

INDIANA

Frankfort		
Chittick, A. G.		Roentgenology
Indianapolis		
Ochsner, Harold C.	Capitol Ave. and 16th St.	Radiology
Wright, Cecil S.	Indiana University Hospitals	Radiology

IOWA

Cedar Rapids		
Gillies, Carl L.	120, 3d Ave., S. E.	Radiology
Council Bluffs		
Hawkins, Emmet L.	542 Franklin St.	Radiology
Dubuque		
Webb, Harold H.	1596 Delhi St.	Roentgenology *
Iowa City		
Gibbon, William H.	University Hospitals	Radiology
Waterloo		
Britt, Otis W.	525 Sycamore St.	Radiology

KANSAS

Kansas City		
Tice, Galen M.	3818 Cambridge St.	Radiology
Wichita		
Webb, J. A. H.	106 N. Main St.	Radiology

KENTUCKY

Lexington		
Lewis, John C.	159 W. Main St.	Roentgenology
Simpsonville		
Bayless, B. W.		Roentgenology

LOUISIANA

New Orleans		
Ané, J. Novell	921 Canal St.	Roentgenology Radium therapy
Shreveport		
Anderson, Johnson R.	1130 Louisiana Ave.	Roentgenology *

MARYLAND

Baltimore		
Hill, Eben C.	Johns Hopkins Med. Sch.	Roentgenology
Easton		
Hammond, William T.		Roentgenology
Frederick		
Derr, John S.	35 E. Church St.	Roentgenology *
Perry Point		
Moxness, B. A.	Veterans Administration Hospital	Roentgenology

MASSACHUSETTS

Boston		
Friedman, Harry F.	270 Commonwealth Ave.	Radiology
Hampton, A. O.	Massachusetts General Hospital	Radiology
Healy, Thomas R.	370 Marlborough St.	Roentgenology *
Meachen, John W.	475 Commonwealth Ave.	Roentgenology *
Moloney, Albert M.	47 Bay State Rd.	Radiology
Morrison, Lawrie B.	370 Marlborough St.	Roentgenology *
Brookline		
Bogan, Isabel K.	193 Aspinwall Ave.	Roentgenology
Lawrence		
Leary, Alfred J.	477 Essex St.	Roentgenology Radium therapy

MICHIGAN

NAME	ADDRESS	TYPE OF SERVICE
Ann Arbor		
Jacox, Harold W.	1116 Lincoln Ave.	Radiology
Detroit		
Dickson, B. R.	337 W. Grand Blvd.	Roentgen Therapy Radium Therapy
Eisen, Paul	258 S. Algonquin St.	Roentgen therapy Radium therapy
Hall, E. Walter	10 Peterboro St.	Radiology
Leucutia, Traian	10 Peterboro St.	Radiology
Wilcox, Leslie F.	10 Peterboro St.	Radiology
Witwer, E. R.	3839 Brush St.	Radiology
Lansing		
Huntley, Fred M.	908 N. Capitol Ave.	Roentgenology

MINNESOTA

Duluth		
McNutt, John R.	3d St. and 5th Ave., E.	Roentgenology
Minneapolis		
Hansen, Cyrus O.	University Hospital.	Radiology
Sagel, Jacob	University Hospital.	Radiology

MISSISSIPPI

Gulfport		
Van Ness, Edwin B.	1005, 32d Ave.	Roentgenology
Houston		
Williams, J. Rice		Roentgenology *

NEW JERSEY

Beachwood		
Swan, Guy Howard		Roentgenology *
Newark		
Friedman, Milton	31 Lincoln Park	Roentgen therapy Radium therapy
Furst, Nathan James.	190 Johnson Ave.	Roentgenology *
Pomeranz, Ralph	31 Lincoln Park	Roentgenology *
Wyatt, Joseph H.	135 Clinton Ave.	Radiology

NEW YORK

Albany		
Murnane, I. J.	182 Washington Ave.	Radiology
Binghamton		
Shaw, Perry H.	93 Main St.	Diagnostic roent.
Brooklyn		
Goodman, Moses	2100, 66th St.	Radiology
Held, Louis A.	175 Hewes St.	Roentgenology *
Krupp, D. Dudley	178 Pennsylvania Ave.	Roentgenology *
Nathanson, Louis	700 Ocean Ave.	Radiology
Segall, L. Martin	4701, 15th Ave.	Roentgenology *
Weinstein, Samuel	1138 Eastern Pkwy.	Roentgenology *
Elmhurst		
Startz, Irving S.	40-16 Gleane St.	Roentgenology *
Far Rockaway		
Lesoff, Morris J.	856 Central Ave.	Roentgenology *
Ithaca		
Larkin, Leo P.	114 N. Tioga St.	Radiology
Middletown		
Schmitz, Walter A.	18 Highland Ave.	Roentgenology
New Rochelle		
Chilko, Alexander J.	41 Halcyon Terrace	Roentgenology *
New York City		
Abbott, Hodson A.	622 W. 168th St.	Roentgenology
Boone, Wm. H.	230 Riverside Dr.	Roentgenology *
Bower, Jacob	133 E. 58th St.	Roentgenology
Busby, Archibald H.	133 E. 71st St.	Diagnostic roent.
Cameron, William H.	511 Fifth Ave.	Radium therapy
Duffy, James J.	2 W. 106th St.	Roentgen therapy Radium therapy
Ehrlich, David Ernest	27 W. 86th St.	Radiology
Fierstein, Jacob	1018 E. 163d St.	Roentgenology *
Francis, William J.	121 Madison Ave.	Roentgenology
Friedland, Henry	2021 Grand Concourse.	Diagnostic roent.
Friedman, Max	1940 Grand Concourse.	Diagnostic roent.
Friedmann, Joseph	53 W. 73d St.	Radiology
Froehlich, Eugene	28 W. 74th St.	Roentgenology
Jacobs, Alexander W.	40 W. 72d St.	Roentgen therapy Radium therapy
Kaplan, Edward E.	103 E. 29th St.	Diagnostic roent.
Kasabach, Haig H.	622 W. 168th St.	Radiology
Kassow, Israel O.	1840 Grand Concourse.	Diagnostic roent.
Levin, Isaac	57 W. 57th St.	Radiology
Mendelson, Emanuel	2174 Bathgate Ave.	Roentgenology *
Merrill, E. Forrest	30 W. 59th St.	Roentgenology *
Ossip, Abraham	152 Henry St.	Diagnostic roent.
Posner, Herman Paul.	469 E. 138th St.	Diagnostic roent.
Radding, Moses B.	545 West End Ave.	Roentgenology *
Swenson, Paul C.	622 W. 168th St.	Diagnostic roent.
Weiss, Leopold D.	36 W. 59th St.	Roentgenology
White, Stephen	57 W. 57th St.	Roentgenology
Wood, Francis C.	421 W. 113th St.	Roentgen therapy Radium therapy
Rochester		
Fray, Walter W.	74 Marlborough Rd.	Roentgenology *
Warren, Stafford L.	199 Barrington St.	Radiology
Syracuse		
Hadley, Lee A.	713 E. Genesee St.	Roentgenology
Utica		
Hall, Robert C.	258 Genesee St.	Roentgenology

NORTH CAROLINA

NAME	ADDRESS	TYPE OF SERVICE
Goldsboro		
Ivey, H. B.	139 W. Walnut St.	Roentgenology Radium therapy
Oteen		
Shawhan, Rezin C.	Veterans Administration Hospital	Diagnostic roent.
Rocky Mount		
Fleming, Major I.	104 S. Franklin St.	Roentgenology
Spencer		
Sigman, F. G.	600, 4th St.	Roentgenology *

OHIO

Cleveland		
Freedman, Eugene	3395 Scranton Rd.	Roentgenology *
West, James H.	10515 Carnegie Ave.	Radiology
Columbus		
Fulton, Huston F.	327 E. State St.	Roentgenology *
Kirkendall, Ben R.	137 E. State St.	Roentgen therapy Radium therapy
Dayton		
Price, Rudolph J.	201 S. Main St.	Radiology
Sandusky		
Hill, Lyle S.	526 Columbus Ave.	Roentgenology
Springfield		
Ultes, Will	6 W. High St.	Roentgenology
Youngstown		
Baker, Edgar C.	Youngstown Hospital	Radiology
Zanesville		
Loebell, Maurice A.	531 Market St.	Roentgenology *

OREGON

Portland		
Butler, Frank E.	410 Taylor St.	Roentgenology
Rees, Sherman E.	608 E. 31st St.	Roentgenology *
Woolley, Ivan M.	410 Taylor St.	Roentgenology *

PENNSYLVANIA

Beaver Falls		
Sterrett, William J.	2828, 4th Ave.	Roentgenology *
Conshohocken		
Burvill-Holmes, E.		Diagnostic roent.
Easton		
Parry, Leo D.	32 N. 3d St.	Radiology
Greensburg		
Singer, John J.	229 S. Main St.	Roentgenology*
Philadelphia		
Bishop, Paul A.	8th and Spruce Sts.	Radiology
Feldstein, Sidney L.	1601 Walnut St.	Roentgenology
Frank, Jacob W.	1730 Spruce St.	Roentgenology *
Hutton, Frederick C.	1409 N. 15th St.	Roentgenology *
Kornblum, Karl	3400 Spruce St.	Radiology
Merchant, Albert K.	3401 N. Broad St.	Roentgenology *
Miller, Garrett R.	1942 N. Broad St.	Radiology
O'Boyle, Cyril P.	4930 Walnut St.	Roentgenology *
Sturr, Robert P.	1823 Spruce St.	Roentgenology Radium therapy
Pittsburgh		
Goldsmith, Maurice F.	3459 Fifth Ave.	Roentgenology *
McCullough, Thos. L.	500 Penn Ave.	Roentgenology

RHODE ISLAND

Providence		
Benjamin, Emanuel W.	201 Waterman St.	Radiology
McNally, D. Raymond	513 Hope St.	Roentgenology

SOUTH CAROLINA

Charleston		
Rudisill, Hillyer, Jr.	Roper Hospital	Radiology

TENNESSEE

Nashville		
Dillard, Charles E.	Geo. W. Hubbard Hospital.	Roentgenology
Hillstrom, Harry T.	Vanderbilt Hospital.	Radiology

VERMONT

Rutland		
Cook, Benjamin F.	46 Nichols St.	Diagnostic roent.

WASHINGTON

Tacoma		
Hart, Alan L.	315 S. K St.	Radiology

WEST VIRGINIA

Charleston		
Lanman, Everette L.	Brooks St. and Elmwood Ave.	Roentgenology

WISCONSIN

Madison		
Ellis, Ivan G.	720 S. Brooks St.	Roentgenology
Milwaukee		
Morton, S. A.	1940 N. Prospect Ave.	Roentgenology

The "Essentials for Admission to the List of Physicians Specializing in Radiology" were published in THE JOURNAL, March 19, 1932, p. 985.

Book Notices

Special Cytology: The Form and Functions of the Cll in Health and Disease. A Textbook for Students of Biology and Medicine. By Various Contributors. Edited by Edmund V. Cowdry, Washington University, St. Louis, Missouri. In 3 volumes. Second edition. Fabrikoid. Price, $30 per set. Pp. 1838, with 757 illustrations. New York: Paul B. Hoeber, Inc., 1932.

The usefulness of this work is indicated by the call for a second edition three years after the first. The work has been greatly enlarged and not only contains concise summaries of recent work but in many instances presents new material. The subtitle refers to investigators who may need information on subjects related to their own fields. Some chapters are so condensed that it is hardly a work for elementary students. The gaps unavoidably left in the first edition are ably filled: a section on hair by Mildred Trotter, on the teeth by Isaac Schour, on ciliated epithelium by A. M. Lucas, on capillaries by August Krogh and Bjovulf Vimtrup, on bone marrow by Florence Sabin, on the spleen by Preston Kyes, on cartilage and bone by A. W. Ham, on the cornea and lens by Ida Mann, on microdissection of the nerve cell by G. S. de Rényi, and on the human uterine gland cells by G. W. Bartelmez and C. M. Bensley. In addition, owing to the decease of the original contributors A. A. Maximow and G. N. Stewart, their sections have been revised by Bloom and J. M. Rogoff. The remaining chapters have been either changed little or largely rewritten by the original contributors according to the rapidity with which additions to knowledge are being made in the several fields. The chapter on the intestinal epithelium by C. C. and M. T. Macklin, for example, has benefited greatly by an extended discussion of the enterochromaffin cells and the duodenal gland cells. F. C. Mann's article contains much more information than before on the microscopic anatomy of the liver in health and in disease. On the other hand, some chapters remain unchanged, which is regrettable in the case of the section on the lung. The article on the suprarenal bodies continues to be based on outdated cytologic work, and the significant work of Swingle and Pfiffner on extracts of the suprarenal cortex is not specifically mentioned. Insufficient consideration is given to the study of fixed preparations in the chapter on striated muscle. The criticism against the first edition, that it was not a study of the ultimate constituents of cells, but a detailed histology for the most part and for the rest a report by investigators of the particular phases of their subjects they themselves had been interested in, still holds but has been met to a certain extent by some of the contributors. G. Carl Huber's chapter on renal tubules, for example, is an admirable presentation of the architecture of the tubules as renal units but also gives a short account of the cytology of the renal epithelium. The series of articles on blood cells and blood-forming organs and on the reproductive organs remain the most masterly reviews in the English language. The new article on the uterine gland cells by G. W. Bartelmez and C. M. Bensley is an excellent and timely contribution, as is also the article on capillaries by Krogh and Vimtrup. The work as a whole is satisfactorily illustrated. There are occasional annoying typographic errors. The bibliographies are complete enough to warrant a continued demand for this work on the part of investigators who desire a reference book.

Monographien aus dem Gesamtgebiet der Physiologie der Pflanzen und der Tiere. Herausgegeben von M. Gildemeister, R. Goldschmidt, C. Neuberg, J. Parnas und W. Ruhland. Band XXVI: Physiologie des Höhenklimas. Von Professor Dr. A. Loewy. Mit einem Beitrag: Das Hochgebirgsklima. Von Dr. W. Mörikofer. Paper. Price, 34 marks. Pp. 414, with 44 illustrations. Berlin: Julius Springer, 1932.

Because of the eminence of Prof. Dr. Loewy in research on the effects of altitude, he is undoubtedly well able to write with reference to these matters. The present volume is one of a number of monographs from a series dealing with the physiology of plants and animals. It is all inclusive, presenting in its first part the history of physiologic researches on the effects of altitude. In the second part Dr. Mörikofer deals with the various factors incident to and connected with altitude. In the third part he deals first with the general effects of altitude and second with those manifold special effects that make themselves manifest in practically all the physiologic functions of the body. Professor Loewy includes not only his own researches but those of others. For every statement made by others and for all researches to which reference is made, one finds a bibliography at the end of each chapter. Each factor participating in the effect of altitude is discussed at first generally and later specifically. The effect on the various physiologic functions is definitely shown. The author frankly states that in certain conditions encountered the physiologic workings of altitude are indefinite and the modus operandi is not known.

The chapters on blood changes, breathing, and effects on the nervous and vegetative system are of especial interest to those engaged in work in connection with altitude flying and its effect on the flier. The chapters on organ changes and mountain sickness, as well as those concerning the effect of sunshine, will be of interest to the practitioner who is contemplating sending patients to an altitude for the purpose of recuperation. There is much interest also for the pure physiologist and pathologist, as the book abounds in scientific research, not, however, to the extent of being unintelligible or uninteresting to the average reader. Meticulous care has been used in attempting to cover every detail that in any way may be connected with altitude. Graphic or numerical charts add much to the value of the book. Most of the researches reported have been made in the Alps, Swiss, Italian and Austrian, but more especially at the Research Institute at Davos, Switzerland. However, material is drawn from all parts of the world and from all leading mountain climbing expeditions.

The Chemistry of Tuberculosis: A Compilation and Critical Review of Existing Knowledge on the Chemistry of the Tubercle Bacillus and its Products, the Chemical Changes and Processes in the Host, the Chemical Aspect of the Treatment of Tuberculosis. By H. Gideon Wells, M.D., Ph.D., Director of the Otho S. A. Sprague Memorial Institute, Chicago, and Esmond R. Long, M.D., Ph.D., Director of the Laboratory of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, and Professor of Pathology, University of Pennsylvania. Second edition. Cloth. Price, $7. Pp. 481, with illustrations. Baltimore: Williams & Wilkins Company, 1932.

The first edition of this book was printed in 1922. It was the original purpose of the authors to collect and review critically preceding and contemporaneous works on this subject that were widely scattered in special journals. The function of the book was to serve as a guide in the study of the chemical aspects of tuberculosis. Since the first edition, so much progress has been made in this field that an almost complete revision of the book was found necessary. The present edition, like the first, holds a unique place among the textbooks on the subject of tuberculosis. The work is divided into three main sections: chemistry of the tubercle bacillus and its products, chemical changes and processes in the host, and chemotherapy of tuberculosis. This organization permits a logical development of the subject and engages with a comprehensive interest the reader whose information on the subject may be limited. For those who have been interested in the study of tuberculosis, it is stimulating in its possibilities for clinical and pathologic correlation. The authors' extensive experience in the subject covered make them particularly well qualified to review critically the data presented.

L'hypoglycémie. Par Jean Sigwald. Préface du Professeur F. Rathery. Paper. Price, 45 francs. Pp. 320. Paris: G. Doin & Cie, 1932.

The condition of increased blood sugar with deficient insular activity, as in diabetes mellitus, has long been a familiar one; but the reverse of this, hypoglycemia with its attendant symptoms, is something relatively new. It is none the less important. The practitioner of medicine must familiarize himself with the overeffects of insulin, since overdosage with this new drug is a frequent occurrence and the most common cause of hypoglycemia. Clinical conditions of spontaneous hypoglycemia are also crying for wider attention. The book contains abstracts of no less than sixty-three cases in which presumptive overaction of the islands of Langerhans, or tumors arising from the islands, is wholly or in part responsible for lowering the blood sugar and provoking more or less serious consequences. The majority of these cases are taken from the literature, but the personal experience of the author is included together with the summary of his studies on variations of the blood plasma that accompany a falling content of sugar. The subject matter includes the symptomatology of glycopenia, spontaneous hypo-

glycemia of glandular origin—islands of Langerhans, suprarenals, pituitary, thyroid—spontaneous hypoglycemia in children, hypoglycemia provoked by injections of insulin or by other experimental procedures, a discussion of the pathogenesis of the insulin reaction, and a consideration of treatment. The bibliography is extensive, including more than 500 titles, and the review of the literature is on the whole satisfactory, although perhaps insufficiently discriminating. The book is well worth a careful reading and may be regarded as distinctly authoritative.

Accidents, Neuroses and Compensation. By James H. Huddleson, M.D., Associate in Neurology, Columbia University. With a foreword by J. Ramsay Hunt, M.D., Sc.D., Professor of Neurology, Columbia University. Cloth. Price, $4. Pp. 256. Baltimore: Williams & Wilkins Company, 1932.

This book will prove useful to all who have to deal with the various aspects of traumatic nervous disorders, particularly the neuroses. It is planned—so the author says in his preface—to show the surgeon and the psychopathologist, in or out of industry, what these neuroses mean and how to circumvent them. The needs of industrial psychologists and legal advisers are considered. The mental mechanisms of the traumatic neuroses are analyzed from many angles, and contributing and complicating physical factors are discussed. Long chapters are devoted to differential diagnosis, treatment and prophylaxis. The all important influence of claims for compensation in connection with the causation, formation of symptomatic pictures and treatment is discussed at length. The author disapproves of all plans involving continued payment for traumatic neuroses, as tending to perpetuate disability. He declares that, if the awarding of money for traumatic neuroses cannot be legally and finally abolished, it should be given in a single sum at the earliest possible moment. While drawing on a large personal experience, the author makes hundreds of references to the work and views of others. A large bibliography with complete titles and references and a good index complete the volume.

Thérapeutique médicale. IV. Poumons et tuberculose. Par M. Loeper, L. Tanon et autres. Paper. Price, 50 francs. Pp. 378, with illustrations. Paris: Masson & Cie, 1932.

This publication from the chair of therapeutics of the Medical Faculty of Paris, under the editorship of the professor of therapeutics, Maurice Loeper, is divided into two parts. The first deals with nontuberculous diseases of the lungs, the second with pulmonary tuberculosis. In accordance with the general purpose of the series, the subjects are discussed from an essentially practical point of view. It is interesting to contrast the essentially optimistic and relatively uncritical tone prevailing in this typical French publication with the almost nihilistic or at least highly critical attitude of leading German therapeutists. It is also interesting to note the national difference in the conclusion of the French author R. Turpin that "B C G vaccine is an inoffensive and efficacious measure to immunize subjects sensitive to tuberculosis" with the German tendency reflected by Busson that "Calmette's vaccination should be reserved for those children only who, by reason of their surroundings or condition of life, are most seriously threatened by tuberculous infection; and it is not suitable as yet for introduction into general practice." One thing is certain: that he who uses the methods of the French therapeutists, as developed in this book, will—if from anything—suffer from an embarrassment of riches in his therapeutic armamentarium.

The Quality of Care Rendered by the University of Chicago Clinics. By Emmet B. Bay, M.D. Paper. Pp. 55. Chicago: Julius Rosenwald Fund, 1932.

In this study an attempt has been made to compare the medical services of the University of Chicago Clinics with private medical practice. The author has devoted about one third of the report to a description of the history and details of organization and operation of the clinics. It appears from this study that the University of Chicago Clinics have established a definite policy of selectivity of the patients accepted for study and care. A definite preference is shown patients who can pay the minimum fees charged and who are not hindered by lack of education or of knowledge of English from cooperating as fully as is desirable to obtain the best results in teaching. Patients who are unable to pay are referred to other city clinics unless those patients seem to have diseases or conditions which the medical faculty is especially engaged in studying. The author examined the diagnosis and treatment as recorded in the records of 447 patients from seven clinics; viz., dermatology; dermatology (syphilis); eye, nose and throat; gastro-intestinal; general medicine; hospital and surgery. Of the 447 cases studied, diagnosis was considered accurate and complete in 325 and the amount and suitability of therapy were believed good and adequate in 255. Of the 325 cases classified as accurately and completely diagnosed, 225 were thought to have been given good and adequate treatment. Three reasons are given to account, in part at least, for some of the failures to make accurate and complete diagnoses or to give good and adequate treatment: (1) Patients felt well and thought return unnecessary; (2) patients felt they could not afford to return; (3) patients misunderstood clinic procedures. The author believes that the clinic social service should function to greater efficiency in assisting patients with little or no money to comply with clinic recommendations. Complaint against the clinic administration was made with respect to waste of time for patients and failure of physicians always to explain to patients the reason for recommendations made.

The author believes that the quality of care rendered by the University of Chicago Clinics was more satisfactory from the point of view of the individual patient than from that of medical education and research. He does not present any data with which this quality of care can be compared to that given in private practice.

Medicine Among the American Indians. By Eric Stone, M.D. No. 7, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $1.50. Pp. 139, with 17 illustrations. New York: Paul B. Hoeber, Inc., 1932.

The author has assembled in one of the brief handbooks of this series, including some 20,000 words, the material published in various places on the medicine of the American Indian before the arrival of the white man. The book constitutes an excellent outline of this subject, being concerned not only with the theory of practice, the organization of the medicine men and their societies but also with the basic science of the aborigines. The author feels that when the medical practices of their nonmedical white contemporaries are considered, the Indians appear at a great advantage. The Indian added fifty-nine drugs to the modern pharmacopeia and the account of his contributions is of great interest. A brief bibliography supplements the volume.

Recherches biochimiques sur la nutrition azotée du Bacillus fœcalis alcaligenes. Par Paul Molliex, docteur de l'Université de Paris. Paper. Pp. 88. Paris: Librairie E. Le François, 1932.

This is a study of the metabolic activities of a bacillus closely related to the typhoid bacillus and manifesting occasional pathogenicity. It contains little of practical interest. The bibliography is far from complete.

Technique chirurgicale estomac et duodénum. Par Pierre Rhéaume, professeur à l'Université de Montréal. Paper. Price, 50 francs. Pp. 260, with 234 illustrations. Paris: Masson & Cie, 1932.

This monograph has accomplished interestingly and concisely the twofold purpose expressed in the author's preface. First, the early history of operative procedures on the stomach and duodenum is presented in order to acquaint the young surgeon with the origin and evolution of present-day methods; second, various new operative procedures described by North American authors are set forth. Professor Rhéaume believes that these procedures are not well known in Europe. In addition to the more common operations, gastro-enterostomy, pyloroplasty and partial gastrectomy, there are chapters dealing with the less frequent forms of gastrostomy, total gastrectomy, duodenojejunostomy and gastropexy. A chapter deals also with transduodenal choledochotomy. The preparation of patients for operation and a chapter describing the personnel and the equipment of an operating room in preparation for an operation on the stomach at Hôtel Dieu, Montreal, are presented. An interesting chapter on general considerations of anesthesia has

been written by Dr. Charles Larocque. Almost every operative procedure is clearly illustrated by large pen and ink drawings or half-tone plates reproduced from the papers of various authors quoted in the text. Each description is to the point, and nonessential details are eliminated.

Medicolegal

Relative Liability of Hospital, Physician and Physician's Employer

(Gosnell v. Southern Ry. Co. (N. C.), 162 S. E. 569)

The plaintiff, Gosnell, an employee of the Southern Railway Company, was accidentally injured through its negligence. The company caused him to be taken to a hospital and to be treated there by a physician whom the company employed for that purpose. Gosnell sued the company for damages for the injuries he suffered as the result of the accident and obtained a judgment for $2,750, which the company satisfied. Subsequently, Gosnell instituted another suit, this time against the Southern Railway Company, the hospital in which he was treated, and the physician who treated him, for damages for injuries that he claimed that he had suffered, not from the accident, but from unskilful and negligent treatment while he was in the hospital, by the physician employed by the railway company. The trial court believed that Gosnell was not entitled to recover damages under this action from any of the defendants and entered judgment dismissing it. From that judgment, the plaintiff appealed to the Supreme Court of North Carolina.

The general rule, said the Supreme Court, is that an action for damages on account of the negligence or unskilfulness of a physician engaged by one person to attend another professionally cannot be maintained against the employer, unless he is chargeable with want of care in the selection and employment of the physician. In the absence of an allegation in the complaint in the present case that the defendant railway company failed to exercise reasonable care in the selection and employment of a physician to treat the plaintiff, the facts stated, said the court, are not sufficient to constitute a cause of action against the company. There was, therefore, no error in the judgment of the trial court dismissing the action as to the company.

The owner of a hospital said the Supreme Court, quoting *Penland* v. *Hospital*, 199 N. C. 314, 154 S. E. 406,

> is not liable for damages resulting from a surgical operation, or from treatment, medical or otherwise, in said hospital, where the surgeon who performed the operation or the physician who treated the patient was employed by the patient or by some one other than such owner, and the damages resulted from the negligence of such surgeon or physician. The owner of the hospital, when the hospital is conducted for his, their, or its gain, and not for charitable purposes, is liable for such damages when they result from injuries caused by the negligence of such owner, or by the negligence of his, their, or its agents, servants, or employees acting within the scope of their employment. When the owner of the hospital undertakes only to furnish the facilities for the operation or for the treatment of the patient, and the patient selects and employs the surgeon who operates on or the physician who treats the patient, such owner, although he, they, or it charges for the use of the facilities furnished, is not liable for damages resulting solely from the negligence of the surgeon or physician.

In the complaint in the present case, it was not alleged that the attending physician was an employee of the hospital or treated the patient as its agent. In the absence of such allegations, said the court, the facts stated in the complaint are not sufficient to constitute a cause of action against the hospital. There was no error, therefore, in the judgment dismissing the action against the hospital.

The cause of action against the attending physician that is alleged in this complaint, however, is not negligence of the defendant railway company. It is unskilful and negligent treatment of the patient's broken leg by his attending physician. The judgment recovered by the patient, in a former suit against the Southern Railway Company and settled by that company, based on the negligence of the company that caused the broken leg, is therefore not a bar to his recovery in the present action against the defendant, the executrix of the attending physician who died while the suit was pending, based on injury through the physician's malpractice. The cause of action on which judgment was recovered is separate and distinct from the cause of action alleged in the present complaint. It was error, therefore, to dismiss the action against the attending physician's executrix. The judgment of the trial court dismissing the action as to her was therefore reversed.

Malpractice: Infection Following Childbirth.—There can be no doubt, said the district court of appeal, first district, division 1, California, that it requires no expert testimony to prove actionable negligence on the part of a physician who performs a rectal and vaginal examination with unsterilized hands, if it is shown that an infection proximately results therefrom. But where the only evidence of infection is that an examination made two months after the delivery disclosed a tear in the uterus, which was infected, and the examining physician fails to testify as to the probable or possible source of the infection, or as to the length of time it may have existed, a finding that the infection resulted from the plaintiff being examined, prior to delivery, by a physician who neglected to sterilize his hands, does not find substantial support in the evidence. It amounts to no more than the barest surmise or conjecture. In the absence of expert testimony, the jury could not properly find that the defendant was guilty of malpractice because the fetus was twisted violently, causing the plaintiff great pain, when the only expert witness to testify stated that in certain cases it is proper practice to turn the baby to facilitate delivery. Neither would the fact that all or part of the placenta was not removed furnish evidence of negligence, in the absence of expert testimony, especially where there is a total lack of evidence that any injury was proximately caused thereby. To establish malpractice, it was alleged that repeated examinations of the plaintiff were made by those whom she described as medical students, accompanied by levity and discourtesy. The plaintiff relied on the case of *De May* v. *Roberts*, 46 Mich. 160, 9 N. W. 146, 41 Am. Rep. 154, in which a doctor took an unmarried, nonprofessional man with him into the delivery room. In that case the court held that the mother was entitled to recover for the "shame and mortification" which she thereby suffered. In the present case, however, shame and mortification were not alleged as an element of damage, the recovery being sought solely for alleged physical injuries. Conceding that the treatment accorded the plaintiff amounted to battery or trespass to the person, the court said, there was no showing that any substantial injury was proximately caused thereby. In the absence of any expert testimony that the defendant was guilty of malpractice, the appellate court sustained the action of the trial court in granting the defendant's motion for a non-suit.—*Inderbitzen v. Lane Hospital (Calif.), 7 P. (2d) 1049.*

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, November 2-4. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American Public Health Association, Washington, D. C., October 24-27. Dr. Kendall Emerson, 450 Seventh Avenue, New York, Acting Executive Secretary.

American Society for the Study of Disorders of Speech, St. Louis, November 25-26. Dr. Samuel D. Robbins, 419 Boylston Street, Boston, Secretary.

American Society of Tropical Medicine, Birmingham, Ala., November 16-18. Dr. Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tenn., Secretary.

Association of American Medical Colleges, Philadelphia, November 14-16. Dr. Fred C. Zapffe, 5 South Wabash Avenue, Chicago, Secretary.

Inter-State Postgraduate Medical Association of North America, Indianapolis, October 24-28. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

New York State Association of Public Health Laboratories, Albany, November 4. Miss M. B. Kirkbride, New Scotland Avenue, Albany, Secretary.

Porto Rico. Medical Association of, San Juan, December 9-11. Dr. P. Morales Otero, 12 O'Donell Street, San Juan, Secretary.

Radiological Society of North America, Atlantic City, November 28-December 2. Dr. Donald S. Childs, Medical Arts Building, Syracuse, New York, Secretary.

Southern Medical Association, Birmingham, Ala., November 16-18. Mr. C. P. Loranz, Empire Building, Birmingham, Secretary.

Southern Surgical Association, Miami, Fla., December 13-15. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Virginia, Medical Society of, Richmond, November 1-3. Miss Agnes V. Edwards, 1200 East Clay Street, Richmond, Secretary.

Western Surgical Association, Madison, Wis., December 9-10. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

28: 1-126 (July) 1932

Some Observations on Use of Intravenous Urography. K. Kornblum, Philadelphia.—p. 1.
Urography in Urinary Tract Anomalies in Infants and Children. M. F. Campbell, New York.—p. 12.
*Influence of Ureteral Stones on Intravenous Urograms. M. B. Wesson and C. C. Fulmer, San Francisco.—p. 27.
Ascending Foreign Body in Kidney Pelvis. T. P. Waring and R. Drane, Savannah, Ga.—p. 34.
Status and Clinical Application of Roentgenology of Thoracic Aorta. J. Sproull, Haverhill, Mass.—p. 37.
*Fractures and Epiphyseal Separation Fractures of Ankle: Classification of Three Hundred and Thirty-Two Cases According to Mechanism of Their Production. P. A. Bishop, Philadelphia.—p. 49.
Diffuse Gastroduodenal Polyposis "en Nappe." J. E. Habbe, Milwaukee.—p. 68.
First Observations on Physiologic Effects of Roentgen Rays on Human Skin. O. Glasser, Cleveland.—p. 75.
Effects of Roentgen Rays on Cytology and Absorption from Experimental Abscesses. E. T. Thorsness, Rochester, Minn.—p. 81.
Some Experiences with High Energy Roentgenography. J. R. Carty, New York.—p. 87.
Roentgen Diagnosis of Fetus Papyraceus in Utero: Case. H. D. Kerr and E. L. Rypins, Iowa City.—p. 89.
Calcification in Scleroderma: New Case. T. Scholz, New York.—p. 92.

Influence of Ureteral Stones on Intravenous Urograms.—Wesson and Fulmer believe that intravenous pyelography should be used as a routine in the case of suspected ureteral stone. If the medium is eliminated equally well from the two kidneys, there is no ureteral stone. Intravenous pyelography is not of direct value in the diagnosis of obstructing nonshadow casting ureteral stones but is of distinct value in excluding stones from the diagnosis. In cases of "acute" ureteral stone there will be a good pyelogram on the unaffected side and an increased density of the kidney on the affected side, but no outline of the pelvis or ureter, or a greatly delayed one. "Chronic" ureteral stones that partially block the ureter show a well outlined pelvis, secondary to stasis, and a varying grade of hydronephrosis of the pelvis. If the stone blocked the ureter completely, there would be a functionless kidney above and hence no pelvic shadow. The early reflex inhibition from the ureteral irritation acts to protect the kidney from an early hydronephrosis. The reduction in ability to secrete the medium is apparent rather than real. The increased density of the affected kidney indicates a concentration of the medium between the glomeruli and the distal end of the connecting tubules, the medium being of equal concentration in the blood of the two kidneys.

Fractures of Ankle.—Bishop points out that in the interest of a better understanding of the relationship of various fractures of the ankle, a classification based on the mechanism of such fractures is desirable. The classification of Ashhurst and Bromer is suggested and reviewed as the one of greatest practical value. Three hundred consecutive adult cases were subjected to this classification, with illustrations of the main types and their variations. The influence of age on traumatic separation of the distal tibial and fibular epiphyses is discussed. Roentgenograms were found to be of little value in diagnosing such injuries, in the absence of displacement, before the eighth year, owing to the absence of visible osseous injury. After the eighth year epiphyseal separation without osseous injury is rare, and after the fifteenth year epiphyseal injuries are rare, fractures being of the adult type. The author presents thirty-two cases of epiphyseal separation fractures. These are considered as fractures of the ankle in which the line of fracture involves some part of the epiphyseal line and are classified as to mechanism, each type presenting definite and characteristic features similar to the adult groups.

Illinois Medical Journal, Chicago

62: 1-96 (July) 1932

Physiologic Considerations in Abdominal Surgery. J. N. Jackson, Kansas City, Mo.—p. 46.
Roentgen-Ray Treatment of Nonmalignant Uterine Hemorrhage. M. J. Hubeny, Chicago.—p. 50.
Bronchial Asthma and Pulmonary Tuberculosis. S. J. Taub, Chicago.—p. 54.
Superior Laryngeal Nerve Section in Advanced Laryngeal Tuberculosis. I. Muskat, Chicago.—p. 57.
Congenital Diaphragmatic Hernia Associated with Accessory Lung. C. C. Guy and G. L. Rand, Chicago.—p. 61.
Some Botanic Aspects of Hay Fever Problem. O. C. Durham, North Chicago.—p. 65.
Use of Iodized Oils in Bronchitis and Bronchiectasis. H. O. Deuss, Chicago.—p. 68.
Personal Hygiene. I. R. Pritikin, Chicago.—p. 75.
Cervical Phlegmon with Osteomyelitis of Jaw Following Local Tonsillectomy. J. W. Hayden, Chicago.—p. 76.
Osteomyelitis of Ilium. E. Jonas, Chicago.—p. 77.
Detection of Albumin in Cloudy Urine. Helen E. Woolley, B. Gowen and G. H. Gowen, Chicago.—p. 78.
Child Study and the Pediatrician. J. R. Gerstley, Chicago.—p. 79.
Radium Treatment of Cervical Cancer in Ambulatory Patients. F. E. Simpson and G. R. Dunlevy, Chicago.—p. 82.
Hematosalpinx and Pyosalpinx in Child. M. S. Mazel, Chicago.—p. 84.
Pontile Hemorrhage in Youth. E. C. Piette and E. F. Traut, Oak Park.—p. 86.
Relation of Endocrine Therapy to General Medicine. J. H. Hutton, Chicago.—p. 88.

Journal of Experimental Medicine, New York

56: 157-305 (Aug. 1) 1932

Studies on Inflammation: VIII. Inhibition of Fixation by Urea: Further Study on Mechanism of Fixation by Inflammatory Reaction. V. Menkin, Boston.—p. 157.
*Effect of Lymphocytosis Induced with Embryonic Extract on Course of Experimental Tuberculosis in Rabbits. K. C. Smithburn, New York.—p. 173.
Diphasic Nature of Tuberculosis in Rabbits After Intravenous Inoculation with Bovine Tubercle Bacilli. R. M. Thomas, New York.—p. 185.
Rôle of Hypersensitivity in Production of Experimental Meningitis: I. Experimental Meningitis in Tuberculous Animals. C. G. Burn and K. H. Finley, New Haven, Conn.—p. 203.
I. Permeability of Wall of Lymphatic Capillary. S. Hudack and P. D. McMaster, New York.—p. 223.
II. Induced Alterations in Permeability of Lymphatic Capillary. P. D. McMaster and S. Hudack, New York.—p. 239.
Degree of Compensatory Renal Hypertrophy Following Unilateral Nephrectomy: I. Influence of Age. E. M. MacKay and L. L. MacKay, New York, and T. Addis, San Francisco.—p. 255.
*Production of Osteogenic Sarcomas and Effects on Lymph Nodes and Bone Marrow of Intravenous Injections of Radium Chloride and Mesothorium in Rabbits. Florence R. Sabin, C. A. Doan and C. E. Forkner, New York.—p. 267.
Further Studies on Nature of Phenomenon of Local Skin Reactivity to Bacterial Filtrates: Toxic Factors Derived from Blood Serum. G. Shwartzman, New York.—p. 291.

Effect of Lymphocytosis on Tuberculosis.—Smithburn reports that chick embryo extract given intravenously did not favorably influence the course of experimental tuberculosis in rabbits, although it did cause lymphocytosis and lymphoid hyperplasia. The tuberculous animals treated with chick embryo extract showed lower values for hemoglobin and red blood cells than tuberculous controls inoculated from the same suspension. Under the conditions of the experiments an increase in the number of young, immature cells in the lymph nodes was accompanied by more extensive tuberculous lesions in the lymph nodes and especially in the germinal centers of the nodes. The author suggests a possible analogy to lymphatic tuberculosis in children.

Effect of Radium on Lymph Nodes and Bone Marrow.—Sabin and her associates present observations which suggest that, with certain doses of radioactive material, the fundamental damage in the lymphoid tissues is to the stem cell and the damage is to the chromatin of the nuclei of these cells. The erythroid tissues are apparently less susceptible to radioactive material than the lymphoid tissues, but an original anemia of secondary type from peripheral destruction may eventually be changed to one of primary type through decreased maturation of primitive cells in the marrow. The damage of lymph nodes and bone marrow leads to atrophy of these organs. The cells of the liver and thymus suffer nuclear damage of the same general character as is seen in the lymph nodes, and

there is an atrophy of these organs. Storage of radioactive material in the bones gave rise to osteogenic sarcoma in two out of seven rabbits surviving from eleven to nineteen months.

Medical Journal and Record, New York

136: 89-132 (Aug. 3) 1932

Problem of Circulation. E. E. Cornwall, Brooklyn.—p. 89.
Treatment of Hay Fever and Pollen Asthma with Pollen Free Air. Isabel Beck, New York.—p. 90.
Hay Fever: Fact, Fancy and Fallacy: Studies in Hay Fever: VI. A. A. Thomen, New York.—p. 94.
Secondary Anemia. R. Finkelstein, Brooklyn.—p. 97.
Mycology and Dermatology. E. Muskatblit, New York.—p. 98.
Historical Evolution and Physiologic Manifestations of Glandular Grafts. S. Voronoff, Paris, France.—p. 100.

Missouri State Medical Assn. Journal, St. Louis

29: 347-396 (Aug.) 1932

Clinical Consideration of Hysterectomy, with Brief Note on Some Points of Technic: Hodgen Lecture. C. J. Miller, New Orleans.—p. 347.
*Recurrent Peptic Ulcer: Clinical Study. F. D. Gorham, St. Louis.—p. 357.
Attempt to Evaluate Transurethral Prostatotomy in Bladder Neck Obstructions. E. G. Mark, Kansas City.—p. 361.
Skin Manifestations of Visceral Disease: Viscerosensory Aspect of Cholecystitis, Appendicitis and Prostatovesiculitis. L. D. Cady, St. Louis.—p. 364.
Prevention of Congenital Syphilis. W. T. Stacy, St. Joseph.—p. 370.
Treatment of Duodenal, High Intestinal and Pancreatic Fistulas. C. Potter, St. Joseph.—p. 374.
Relief of Intractable Pain by Nerve Block and Section. W. D. Abbott, Des Moines, Iowa.—p. 379.

Recurrent Peptic Ulcer.—Gorham points out that it is necessary to treat ulcer patients as ambulatory cases, even those who are able to spend some time in the hospital. The relief of subjective symptoms, especially in uncomplicated duodenal ulcer, by nonsurgical management is at times spectacular. The same may be said for pyloric obstruction due to pylorospasm secondary to a duodenal or prepyloric ulcer. Also convincing is the disappearance of the niche in gastric ulcer as studied roentgenologically. Results of questionnaires sent to a group of the author's ambulatory patients showed that 32 per cent complained of difficulty in following the regimen at home; 77 per cent were relieved of subjective symptoms; only 38 per cent reported that they had remained entirely free from symptoms after two years. In no instance, whether the patient was treated ambulatorily or hospitalized, did the duodenal deformity as determined roentgenologically disappear. In the majority of the gastric ulcer subjects the niche disappeared promptly. Except in the pyloric obstruction cases, the gastric acidity was not influenced. Approximately 85 per cent of the pyloric obstruction cases proved to be due to spasm rather than to cicatrix formation. In the management of uncomplicated peptic ulcer, of chief importance is an early diagnosis, a definite regimen including rest and frequent feeding of bland diet, alkalis to control pain, and sedatives and antispasmodics to their physiologic limit. A change of environment frequently contributes to the early relief of symptoms. The patient must be especially careful to return to a strict regimen on the first reappearance of symptoms, which are especially likely to recur in the spring and fall or after unusual physical or mental stress.

Nebraska State Medical Journal, Lincoln

17: 317-360 (Aug.) 1932

Physiology of Mucous Secretion with Some Experimental Results on Prevention of Ulcer with "Gastric Mucin." A. C. Ivy, Chicago.—p. 317.
Indications for and Results of Surgical Treatment of Pulmonary Tuberculosis. T. J. Kinsella, Oak Terrace, Minn.—p. 321.
*Industrial Accidents and Chronic Arthritis. J. E. M. Thomson, Lincoln.—p. 324.
Some Psychologic Principles Underlying Child Behavior. H. M. Jahr, Omaha.—p. 328.
Progress of Surgery: Review of Literature of First Half of 1932. H. H. Davis, Omaha.—p. 331.
Idiopathic Aplastic Anemia: Report of Case. R. P. Luce and J. H. Lynch, Fairbury.—p. 334.
Rabbit Ovulation Test for Pregnancy. H. V. Kamp, Chadron.—p. 335.
Report of Delegates to Convention of A. M. A., Philadelphia, 1931. R. W. Fouts, Omaha.—p. 337.
Rupture of Uterus Through Cesarean Scar in Second Month of Pregnancy. C. H. Waters, Omaha.—p. 339.

Industrial Accidents and Chronic Arthritis.—Thomson calls attention to the fact that traumatic arthritis should be suspected as a complication of every injury that amounts to as much as a sprain, strain or fracture in or near a joint, in a patient over 40 years of age, since practically every patient over 40 has some chronic arthritis and it will very likely influence the healing of an injury near a joint. Successful management of such a case is dependent on the early diagnosis and recognition of the existence of a chronic arthritis at the time of injury and on the early recognition of the possibilities of arthritis developing, especially when there are potential factors such as a general run down condition, multiple foci of infection, exposure and advancing age. The treatment should consist of rest during the healing period, physical therapy, general upbuilding, elimination of foci of infection and specific vaccine therapy.

New England Journal of Medicine, Boston

207: 153-202 (July 28) 1932

Study of Lobar Pneumonia in Massachusetts: Preliminary Report. R. Heffron, Boston.—p. 153.
Twenty Years of Syphilis Under Salvarsan. C. M. Smith, Boston.—p. 159.
Interpretations of Syndromes Associated with Arterial Hypertension. Soma Weiss, Boston.—p. 165.
Factors Concerning Prognosis in Heart Disease. S. A. Levine, Boston.—p. 173.
Maternity Problems: Survey. Gulli Lindh Muller, Boston.—p. 179.
Massachusetts Tuberculosis League: Prevention and Control of Tuberculosis in Commonwealth of Massachusetts: President's Address. F. T. Lord, Boston.—p. 182.
Id.: Annual Report of Executive Secretary. F. Kiernan, Boston.—p. 184.
Id.: Annual Report of Educational Secretary. Jean V. Latimer, Boston.—p. 187.

207: 203-244 (Aug. 4) 1932

*Silicosis or Pneumonoconiosis in Vermont Granite Cutters and Slate Workers. E. J. Rogers, Pittsford, Vt.—p. 203.
Pneumothorax Treatment in Pulmonary Tuberculosis. A. Peters, Waltham, Mass.—p. 208.
Thoracoplasty in Pulmonary Tuberculosis. W. Whittemore, Boston.—p. 211.

Silicosis in Vermont Granite Cutters.—Rogers gives the following as a more or less typical case of tuberculosis arising in the granite worker: The patient is usually of good weight, but following a vacation or cessation of work from a strike he notices that his "wind" is not quite so good as formerly. He may even notice a little fatigue. If there is any hoarseness he does not pay any attention to it because many of the cutters have a thickening of the posterior commissure resulting from constant dust inhalation and have to clear their throats frequently. Next in order come a disturbance of digestion, loss of weight, definite fatigue and pleurisy. Occasionally the patient has a frank hemorrhage. There is also fever, which is not apt to be high. Some patients have a pronounced fear of tuberculosis and will not go to a physician, while still others visit every physician in the vicinity. On examination the patients are found to have something more or less like a dry pleurisy. Each physician sends away the sputum and for a long time the reports continue to come back negative. Finally the sputum is positive. The physician may or may not tell the patient that he has tuberculosis. The philosophy of the physicians in the granite district is that treatment does not seem to bring about a cure and that it seldom extends the life of the patient more than from six to twelve months; therefore, many of the patients are given a diagnosis of "bronchitis" and are encouraged to keep at work. This means that the patient earns full pay for six, twelve or eighteen months, keeps away from his children eight or nine hours a day, and is better able to provide for his family.

New York State Journal of Medicine, New York

32: 897-946 (Aug. 1) 1932

Orbital Infections. A. Knapp, New York.—p. 897.
Two Esophageal Cases. J. V. Bohrer, New York.—p. 901.
Indications and Contraindications for Physical Therapy in Traumatic Conditions. W. V. Healey, New York.—p. 903.
Conservative Surgical Considerations in Treatment of Cancer of Breast. W. L. Corcoran, New York.—p. 910.
Rôle of Vitamins and Infection in Peptic Ulcer. E. F. Hartung, New York.—p. 914.
Certain Educational, Professional and Civic Phases of Clinical Specialization. G. H. Meeker, Philadelphia.—p. 918.

Public Health Reports, Washington, D. C.

47: 1601-1642 (July 29) 1932

Service of State to Local Health Departments. H. S. Mustard and W. K. Sharp, Jr.—p. 1601.

Southern Medical Journal, Birmingham, Ala.

25: 785-894 (Aug.) 1932

*Wounds of Heart and Pericardium: Report of Cases and Summary of Literature of Sutured Heart Wounds. I. A. Bigger, Richmond, Va.—p. 785.
Cerebral Vascular Lesions Disclosed at Operation. E. F. Fincher, Jr., and C. E. Dowman, Atlanta, Ga.—p. 794.
Treatment of Head Injuries. J. L. Rawls, Norfolk, Va.—p. 800.
Chronic Peptic Ulcer. J. W. Larimore, St. Louis.—p. 804.
*Diathermy Hyperpyrexia in Chronic Afebrile Diseases. J. C. King, Memphis, Tenn.—p. 813.
Administration of Serum in Meningitis. G. M. Lyon, Huntington, W. Va.—p. 818.
Primary Osteomyelitis (Chronic Fibrous) of Anterior Superior Spine of Ilium: Report of Case. R. C. Robertson, Chattanooga, Tenn.—p. 825.
Roentgenographic Pelvimetry: Perfected Technic with Use of New Apparatus. J. B. Jacobs, Washington, D. C.—p. 828.
The Persimmon Bezoar: Report of Case. V. E. Schulze, Galveston, Texas.—p. 833.
Granuloma Inguinale, with Especial Reference to Its Occurrence in White Race. S. J. Lewis, Beaumont, Texas.—p. 836.
Malignant Tumors of Male Breast: Preliminary and Abbreviated Report. M. P. Neal, Columbia, Mo.—p. 841.
Congenital Syphilis. W. U. Rutledge, Louisville, Ky.—p. 844.
Use of Allylisopropyl Barbituric Acid in Labor. J. E. Hobbs, St. Louis.—p. 852.
Is Organotherapy of Real Value in Treatment of Functional Disturbances of Reproductive Organs of Women? E. Novak, Baltimore. —p. 856.
Female Ureter: New Factor in Infections of Kidney Pelvis in Women and Children. A. I. Folsom, Dallas, Texas.—p. 859.
Voiding Distance Decrease an Important Early Symptom of Prostatic Obstruction. E. G. Ballenger, O. F. Elder and H. P. McDonald, Atlanta, Ga.—p. 863.
Spindle Celled Sarcoma of Bladder: Report of Case. F. K. Garvey and T. R. Barry, Knoxville, Tenn.—p. 864.
Symptomatology of Mastoiditis: Individual Anatomic and Histopathologic Variations. J. W. Downey, Jr., Baltimore.—p. 866.
Treatment of Acute Mastoiditis. P. L. Mahoney, Little Rock, Ark. —p. 870.
Experience with Rabies and Its Preventive Treatment in South Carolina. H. M. Smith, Columbia, S. C.—p. 876.
Reticulocytes in Pneumonia: Test of New Theoretical Explanation of Crisis. J. Krafka, Jr., and S. F. Rosen, Augusta, Ga.—p. 880.
Method of Instructing Junior and Senior Students. J. H. Musser, New Orleans.—p. 882.
Graphic Art and Its Application to Teaching of Medicine: Animated Film. H. C. Schmeisser, J. V. Caltagirone and J. L. Scianni, Memphis, Tenn.—p. 886.

Wounds of Heart and Pericardium.—Bigger states that wounds of the pericardium alone should not be treated surgically unless there is evidence of intrapericardial hemorrhage or infection. The development of cardiac tamponade produces characteristic symptoms and signs which demand immediate relief. When blood does not become trapped in the pericardial sac, the difficulty of diagnosis is greatly increased; but if there is evidence of continued intrathoracic hemorrhage, an exploratory thoracotomy should be done.

Diathermy Hyperpyrexia in Chronic Afebrile Diseases.—According to King, the successful application of induced fever reactions in afebrile diseases is dependent on one's knowledge of the physiologic changes produced by hyperthermia, as well as on an understanding of the pathologic changes in the diseases to which it is applied. The diathermic method has many advantages over other procedures previously used to bring about febrile reactions. Better results have been made possible by the improvement in apparatus and technic. The results obtained with diathermic fever in dementia paralytica indicate that this is the treatment of choice at the present time. Pyrexia causes profound dilatation of the arterioles and capillary bed, which are the seat of the most active pathologic changes in syphilitic infections. By giving intravenous antisyphilitic medication immediately before diathermy, one is able to combat the disease at a time when its pathologic processes are altered and the resistance of the spirochete is lowered by the high temperature. Thus, one cures the disease in its incipience or at least prevents the serious complications of latent syphilis. The improvement observed in chronic arthritis so far has been most encouraging. This is attributed to the changes in the existing pathologic process brought about by the reactions to fever. In gonorrhea, diathermy combats the progress of the disease by the bactericidal effect of heat and through the increased vascularity, which hastens resolution of chronic processes. The proper application of the treatment in the female has brought about gratifying results, but so far its use in the male has not been encouraging. Although a distinct improvement in symptoms is to be derived from the use of diathermy in the treatment of thrombo-angiitis obliterans, bronchial asthma, multiple sclerosis and chorea, the results obtained to date are not commensurate with those secured in dementia paralytica, chronic arthritis and gonorrhea.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

40: 401-463 (Aug.) 1932

Surgery for Cancer of Face and Lip. D. V. Trueblood, Seattle.—p. 401.
Spinal Cord Surgery: A Clinic. P. G. Flothow, Seattle.—p. 404.
Summary of Eighty-Six Cases of Cerebrocranial Injuries. S. N. Berens, Seattle.—p. 409.
Acute Meningitis with Apparent Cure: Death Occurring Five Years Later from Peritonitis, Pneumococcic Meningitis and Cerebellar Abscess: Report of Case. A. T. Wanamaker, Seattle.—p. 413.
Appliances Used in Ophthalmic Surgery. L. L. McCoy, Seattle. —p. 415.
Results After Pyloroplasty. J. T. Mason and J. W. Baker, Seattle. —p. 419.
Abdominal Signs in Acute Pancreatic Disease. R. D. Forbes, Seattle. —p. 425.
Intestinal Obstruction with Associated Gallbladder Disease: Report of Two Cases. R. L. Zech, Seattle.—p. 428.
Separation of Upper Femoral Epiphysis: Summary of Fourteen Cases (Eighteen Hips). C. F. Eikenbary and J. F. LeCocq, Seattle.—p. 432.
Cone Type Hysterectomy. R. J. O'Shea and E. A. Nixon, Seattle. —p. 437.
Vesicovaginal Fistula. O. A. Nelson, Seattle.—p. 442.
Perforation of Uterus and Intestinal Trauma During Curettage: Report of Case. H. G. Wright, Seattle.—p. 445.
Fractures of Neck of Femur in the Aged. D. A. Murray, Seattle. —p. 451.
Mastoiditis Associated with Generalized Lymphangitis and Marked Induration of Neck and Cheek. F. H. Wanamaker, Seattle.—p. 454.

Wisconsin Medical Journal, Madison

31: 502-583 (Aug.) 1932

*Fractures: Skeletal Traction in Treatment of Fractures of Lower Extremity. R. M. Carter, Green Bay.—p. 509.
Evaluation of Modern Treatment of Ununited Fractures of Neck of Femur. J. W. Powers, Milwaukee.—p. 512.
Observations on Duodenal Obstruction. R. B. Johnson and G. Gundersen, La Crosse.—p. 515.
*Iodized Table Salt and Goiter Surgery in Detroit. R. D. McClure, Detroit.—p. 519.
Carcinoma of Esophagus. L. W. Tasche, Sheboygan.—p. 523.
The General Practitioner's Response to Challenge of Obstetrics. A. A. Skemp, La Crosse.—p. 527.
Diagnosis and Treatment of Ectopic Pregnancy. C. B. Hatleberg, Chippewa Falls.—p. 530.

Fractures.—During the past two years, Carter has used the method of skeletal traction by means of the Kirschner wire in twenty-four cases of fractures of the femur and in thirty-one cases of fracture of the tibia or of both bones of the leg below the knee. Formerly, a number of these conditions, particularly the spiral fractures of the tibia, would have been operated on, because otherwise, satisfactory reduction and retention would have been impossible. By means of wire traction, all open operations with their attendant risks of infection and prolonged healing period have been avoided. The end-results, everything considered, are much better than could have been obtained by any other means. Particularly is this true of fractures of the femur. And these results have been secured with much greater comparative comfort to the patients. The author points out that these statements must not be taken to mean that open operations are never necessary in fractures of the lower extremity; in certain cases they are unavoidable. What he wishes to emphasize is the fact that the intelligent use of skeletal traction, applied by means of the Kirschner wire, will greatly reduce the number of cases that require operation, and that the results obtained in all cases treated conservatively will be as good as those obtained by any other procedure now commonly employed, and in most cases even better.

Iodized Salt and Goiter Surgery.—McClure points out that there has been a tremendous reduction in the incidence of nontoxic diffuse goiter since the introduction of iodine salt in Michigan. There has also been a marked dropping off in the number of goiter operations in the Detroit and Ann Arbor areas since the introduction of this salt. The number of all operations has increased, so that relatively there is a still more marked drop. The author does not conclude from these facts that iodine deficiency is the only cause of goiter but he does believe that, if the thyroid can be kept in its normal state by a sufficient intake of iodine, toxic diffuse and nodular goiters are less apt to develop.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

9: 141-188 (July) 1932

Choice of Anesthetic for Abdominal Surgery. H. Finsterer.—p. 143.
Percaine Subarachnoid Block. H. P. Fairlie.—p. 162.
Tetany During Ether Anesthesia. W. N. Kemp.—p. 169.
Modern Anesthetics, the Teaching Hospital and the Undergraduate. J. R. Mackenzie.—p. 175.

British Medical Journal, London

2: 129-182 (July 23) 1932

Changes in Medical Profession and Advances in Medicine During Last Fifty Years. H. Rolleston.—p. 129.
A Century of British Surgery. D. Power.—p. 134.
*Raynaud's Disease, with Especial Reference to Nature of Malady. T. Lewis.—p. 136.
*Consideration of Backache from Orthopedic Standpoint. W. A. Cochrane.—p. 138.
Pleural Effusions: Observations on Present Position of Treatment. E. T. Freeman.—p. 140.
*Mean Temperature of Healthy Girls. J. H. P. Paton.—p. 142.
Color Index of Blood in Diabetic Coma. R. D. Lawrence, H. A. Lucas and R. A. McCance.—p. 145.

Raynaud's Disease.—Lewis points out that, regardless of the views one takes of various questions concerning Raynaud's disease, one is still left with the conclusion that the condition is a local disorder of the arteries and is not caused by a disturbance of the vasomotor nervous system. That is a conclusion which sooner or later must influence the management of these cases. A curious disorder appearing in recent years among workers with tools or machines that vibrate is of much interest in this connection. It occurs in a number of different trades but may be illustrated by stone masons who use a chisel driven by compressed air. In these workers a condition indistinguishable from Raynaud's disease develops in the fingers; the circulation to them is lost on ordinary exposure to cold. But what is most noteworthy is that the fingers most exposed to the vibration are those that present this abnormality first. The example is cited as an instance of Raynaud's malady arising locally and asymmetrically out of an obvious local cause. The author believes that one may safely conclude that in Raynaud's disease the fault is purely a local one and that vasomotor tone is normal during the attack. He cites seven illustrative reactions explained by the new theory.

Backache from Orthopedic Standpoint.—According to Cochrane, a useful clinical classification of low back pain is the following: (1) acute traumatic strain, (2) general postural strain, (3) lumbosacral strain, (4) sacro-iliac strain, and (5) combined pelvic joint strain. In conditions of acute traumatic strain there is usually a tear of muscle or aponeuroses. Treatment of a torn muscle must consist of rest until healing has taken place. Most patients with industrial back accidents are allowed to use the muscles too soon and with insufficient protection. If there is a superadded infective focus in the body, this may be a factor in keeping up the painful muscle spasm, which tends to persist. Such fixation is crippling, and manipulation under an anesthetic offers the best chance of cure. To secure the required rest the patient should be made recumbent on a firm mattress and have the back splinted with straps of broad adhesive strapping placed transversely across it. The knees are supported on a pillow. In severe cases a plaster-of-paris jacket should be employed, or recumbency in a plaster shell. Heat in the form of hot fomentations, massage, and exercises are begun almost immediately, and in the average case the patient should be allowed up in about three weeks. In general postural strain the condition is one of general muscular fatigue, and ligamentous strain not confined to one joint. The patient is usually of the asthenic type. Such cases require nutritional and supportive treatment by rest, massage, postural remedial exercises, and support by a brace and corset. In lumbosacral strain the pain is localized in an indefinite way over the low spine and hip. The pain is usually asymmetrical, and sciatica is a frequent symptom. This kind of backache is generally relieved by rest. The lumbar and lumbosacral movements are markedly limited, and there is localized tenderness on deep pressure over the lumbosacral articulations. This point may be best made out by examining with the patient kneeling on his hands and knees. Treatment is largely similar to that already mentioned for acute traumatic strain. One important exercise is to teach the patient to flatten the lumbar spine, and a brace is employed to span the lumbar curve and to help the muscles to maintain its position. In contrast to lumbosacral strain, which usually affects one side and is relieved by recumbency, sacro-iliac strain is commonest in the slender, visceroptotic types who use the body in poor posture. Tenderness is referred to the joint on its posterior and inferior aspects. There is hamstring spasm when the patient bends forward. Treatment of the condition is the same as treatment of lumbosacral strain. When these methods are unsuccessful, and in the more acute cases, the patient must have the joint manipulated under an anesthetic. The assistant fixes the pelvis and opposite limb. The surgeon then flexes the affected hip, with the knee straight to the right-angled position, and pushes directly downward. Lumbosacral and sacro-iliac strain may occur together, owing to the faulty mechanics to which a large lumbosacral transverse articulation can give rise. In severe cases of painful semi-sacralization, a fusion operation to fix the lumbosacral region by means of a bone graft may be indicated. Prolonged fixation, however, for several months in a complete plaster spica casing has succeeded in curing a large proportion of the cases.

Mean Temperature in Healthy Girls.—From observations made in a large boarding school for girls, Paton draws the following conclusions: 1. The normal (or ruling) temperature of girls of from 14 to 17 years of age is nearer 97.4 F. than 98.4 F. 2. Girls in whom the mean approximates to 98.4 F. are rare. 3. A temperature of 98.4 F. in the mouth is so suggestive of illness that it should not be disregarded unless no other disturbance of health can be detected.

Indian Medical Gazette, Calcutta

67: 361-420 (July) 1932

Thymol, Menthol and Camphor from Indian Sources. R. N. Chopra and B. Mukherjee.—p. 361.
Significance of Widal Reaction and Other Laboratory Observations in Typhoid Fever. J. C. De, K. Laha, A. K. Acharya and K. K. Ghose.—p. 366.
Vitamin Value of Food Fats of Bengal: Preliminary Study. B. B. Brahmachari.—p. 377.
Bacillus Coli in Calcutta Filtered Water Supply: Preliminary Report. J. das Gupta.—p. 380.
Notes on Cataract in the Punjab. Jamal-ud-din.—p. 386.

Lancet, London

2: 225-272 (July 30) 1932

One Hundred Years and After. Dawson.—p. 225.
*Contribution to Study of Intermittent Headache. A. P. Thomson.—p. 229.
Chemical Identification of Vitamin C: Confirmation of Activity of Preparation of Hexuronic Acid. L. J. Harris, Isobel Mills and J. R. M. Innes.—p. 235.
*Sulphur Therapy in Psychoses. P. K. McCowan and M. L. M. Northcote.—p. 237.

Intermittent Headache.—Thomson gives a description of twenty-five cases of intermittent headache lacking the visual symptoms of classic migraine and occurring particularly at menstruation; in seventeen of these cases well marked abnormalities in the sella turcica were demonstrated roentgenologically. The most frequent roentgen abnormality was ossification of the interclinoid ligaments (complete in nine cases, incomplete in two). The author points out that the usual anatomic description of the diaphragma sellae as "a fold that almost completely roofs in the sella turcica" is incorrect. Normally the swelling of the pituitary can occur without inducing intrasellar tension. It is suggested that where interclinoid ossification exists the diaphragma sellae may be unusually well developed and so predispose an individual to intrasellar tension; a case in a man is described in support of this view. It is suggested that in this series the paroxysmal headache was due to the development of local tension in the sella turcica, particularly at the time of menstruation. Evidence in support of this view is to be found in: (1) the recent experimental work in monkeys, which shows that menstrual bleeding depends on the activity of the anterior part of the pituitary body; (2) the occurrence of menstrual headaches for many years in two women in whom tumors of the pituitary body developed subsequently; (3) two instances of direct inheritance of interclinoid ossification and a tendency to menstrual headache; (4)

the failure to demonstrate similar roentgenologic abnormalities in individuals who do not complain of headaches, and (5) the improvement of the headaches in a fair proportion of the cases following the administration of the ovarian follicular hormone, which in animals has been shown to reduce the size of the pituitary.

Sulphur Therapy in Psychoses.—According to McCown and Northcote, there seems no doubt that sulphur is in no way specific in the treatment of any of the psychoses but can be regarded as a useful addition to the type of treatment in which the setting up of a periodic pyrexia is the chief feature. It merits a trial in certain early cases of schizophrenia in which the patients are not responding to occupational therapy, and seems definitely useful in some advanced schizophrenic patients exhibiting obnoxious habits, or a temporary exacerbation of their psychosis. It seems to be useful in cutting short attacks of benign stupor. In the only melancholic patient of the manic-depressive type treated, it terminated an attack which had lasted two years; but in involutional melancholia it was entirely without effect. The author cannot recommend repeated courses as a routine measure, since none of his patients who failed to respond to the first course of injections benefited from subsequent courses, and it would appear unjustifiable in cases in which occupational therapy is proving beneficial to interrupt this treatment by a further course of sulphur injections. While it is possible that some beneficial biochemical changes are set up in the organism, there seems to be little doubt that the benefit which results from the treatment is largely, if not entirely, psychologic, the physical illness, with its pain and general discomfort, and the incidental nursing attention interrupting the phantasy life of the patient and forcing reality on him. It cannot be too strongly emphasized that occupational therapy should be instituted as early as possible in any case that has responded to the sulphur therapy, so that the new contact with reality may be maintained, and, if possible, increased.

Journal de Médecine de Lyon

13: 521-548 (Sept. 5) 1932

Malignant Lymphogranulomatosis and Dilatation of Bronchi. C. Roubier.—p. 521.
*New Treatment of Chronic Arthritis of Hip: Drilling of Femoral Epiphysis. J. Graber-Duvernay.—p. 531.

Treatment of Chronic Arthritis of Hip.—Graber describes a new treatment of chronic coxitis which was first used by Duvernay in 1930 and since the latter's death has been employed with good results by the author. The treatment consists in a simple drilling of the femoral epiphysis and introduction of a peg of dead bone of small caliber into the hole made. This form of treatment is absolutely benign and is intended for those cases in which medical and physical therapy have failed and the common surgical interventions, which are attended by shock, are contraindicated by the age, weakness or diathesis of the patient. The author describes the technic of the operation and gives ten case histories. There is no postoperative shock with this intervention. The patient can usually start to walk in from twelve to fifteen days after intervention and leave the hospital by the twentieth day. The intervention results in a cessation or at least a marked decrease of pain and, in the nonankylosing forms, a pronounced functional improvement due to the disappearance of antalgic contractions. The author thinks that all forms of painful coxitis are amenable to drilling, if the other methods have failed. In the case of chronic painful ankylosing coxitis, he considers drilling the only logical intervention. The only contraindication is the existence of a grave organic disturbance. The mode of action of the drilling of the femoral epiphysis consists essentially in bringing about a new circulatory equilibrium in the head of the femur which arrests evolution of the pathologic process. The peg, while not indispensable, is an aid to roentgenologic control of the exact direction of drilling. Further, as a foreign body it produces a condition of irritation of the living bone which prolongs the action of the drilling. The lapse of time since the first interventions is enough to permit the hope that the new circulatory equilibrium will be maintained. Besides the appreciable relief which this treatment brings, it puts the patient in a condition to benefit by medical and physical therapy.

Minerva Medica, Turin

2: 229-264 (Aug. 25) 1932

Recent Progress in Treatment of Pernicious Anemia: Advantages of Parenteral Hepatotherapy. L. Crosetti.—p. 229.
*Preoperative Treatment of Exophthalmic Goiter: Antithyroid Action of Blood Transfusion. L. Biancalana.—p. 237.
Intestinal Occlusion Due to Meckel's Diverticulum. A. Botto-Micca.—p. 247.

Preoperative Treatment of Exophthalmic Goiter.—Biancalana considers surgical intervention the most reasonable and efficacious treatment of exophthalmic goiter. In order to derive all the advantages from the operation without incurring its dangers, a period of preparation of the patient for operation is necessary. After reviewing the antithyroid methods and remedies, the author studies the effect of blood transfusions from hypothyroid patients to hyperthyroid patients and the effect of blood transfusions from normal individuals to hyperthyroid patients. Examinations made by the author demonstrate the efficacy of transfusion by the improvement of subjective and objective symptoms of the patients and mainly by the diminution of basal metabolism. Comparing the two types of transfusion, it is seen that the blood of the hyperthyroid patients is therapeutically no more efficacious than the normal blood. The author maintains that the transfusion of normal blood deserves an important place in preoperative therapy of exophthalmic goiter because it is instrumental in strengthening general conditions of resistance on the part of the patient, in combating the tendency to dehydration and acidosis, and in exercising a notable antithyroid action.

Semana Médica, Buenos Aires

39: 357-436 (Aug. 11) 1932. Partial Index

Hemangiectatic Hypertrophy of Limb of Parkes-Weber Type: Case. E. P. Fidanza and S. Schujman.—p. 357.
Primary Cancer of the Lung Associated with Purulent Pleurisy: Case. J. J. Vitón and A. Marano.—p. 367.
Closure of Artificial Anus and of Fecal Fistula by Distal Intraperitoneal Method: Technic. A. Ceballos and H. Taubenschlag.—p. 370.
*Catheterization of Right Heart: Rôle of Superior Vena Cava in Projection of Right Outline of Supracardiac Shadow of Great Vessels of Heart in Roentgen Picture. T. Padilla, P. Cossio and I. Berconsky.—p. 391.
Dynamic Arterial Blood Pressure: Methods for Determination. J. M. Nágera.—p. 396.

Catheterization of Right Heart.—Padilla and his collaborators state that in spite of the time that has elapsed since the introduction of the roentgen rays for the examination of the heart and of the great vessels of its base, there is not as yet a definite agreement as to which are the vessels whose projections form the right outline in the supracardiac shadow of the roentgenogram of those vessels. While some authors state that the right outline of the supracardiac shadow represents the projection of the ascending portion of the aorta, taking as the ground for their assertion the pulsation in the lower portion of the right outline of the shadow, others maintain that it represents the projection of the superior vena cava. To ascertain the rôle of either the ascending portion of the aorta or of the superior vena cava in the formation of the right outline of the shadow, Padilla and his collaborators performed catheterization of the right heart, according to their technic described in *La semana médica* **39**:79 (July 14) 1932 (abstr. THE JOURNAL, Oct. 8, 1932, p. 1301), in four patients (two with grave diseases but with a normal cardiovascular system and two with grave diseases of the cardiovascular system and with an aneurysmal dilation of the ascendent part of the aorta). In all cases the roentgenogram showed the catheter at the right edge of the outline of the supracardiac shadow, thus proving that it reached the right auricle through the superior vena cava. The catheter had not been removed in three cases and a necropsy revealed that it was lodged in the superior vena cava as interpreted in the roentgenogram. From their observations the authors conclude that the right outline of the supracardiac shadow in the projection of the great vessels of the heart in the roentgenogram is formed by the superior vena cava, both in persons with a normal cardiovascular system and in those with a dilatation of the ascending aorta. The same interpretation is correct even in those cases in which the shadow shows a convexity toward the right pulmonary field. The pulsation of the right inferior border of the supracardiac shadow may be caused by the superior vena cava, which transmits the pul-

sation received from the aorta. The ascending part of the aorta is so distant from the right border of the supracardiac shadow of the great vessels of the heart that even if it is the seat of a more or less marked dilatation its shadow cannot cover that projected by the superior vena cava in the roentgenogram.

Dermatologische Wochenschrift, Leipzig

95: 1225-1252 (Aug. 20) 1932

Cultivation of Tubercle Bacilli from Blood in Tuberculosis of Skin. P. von Engel.—p. 1225.
*Recent Observations on Various Forms of Gonococci. J. Szilvási.—p. 1228.
Several New Remedies for Treatment of Gonorrhea. H. Geyer.—p. 1233.

Observations on Various Forms of Gonococci.—Szilvási challenges the generally accepted theory that the gonococcus is a diplococcus, and states that the diplococcic form of the gonococcus predominates only when the nutrient medium is favorable. However, when the medium is poor the monococcic form predominates. During a first infection, when the organism has as yet no reserve of immune substances, and the urethral mucous membrane and the glandular organs are still intact, which implies that the nutrient medium of the gonococcus is favorable, the diplococcic form predominates. However, in persons who have been reinfected several times and thereby have acquired a certain degree of immunity, but who also have impaired tissues and consequently represent a less favorable culture medium, the monococcic form of the gonococcus is found. The same observation could likewise be made on artificial culture mediums. The author illustrates his statements by photomicrographs. He then discusses atypical forms of the gonococcus, for neither those that occur as diplococci nor those that occur as monococci always have the same size and shape. In studying the different variations, the author exercised the greatest care. The secretions examined by him were taken only from patients with an acute attack, and only when the anamnesis and the examination revealed the typical aspects of gonorrhea. He also emphasizes that in pure culture the bacteria must present the well known and characteristic, dewdrop-like, almost transparent colonies; further, they must grow in a dextrose medium but not in a maltose medium, and they must be gram negative. The latter characteristic he considers as one of the most constant signs of the gonococcus. With these precautions he has so far been able to identify definitely the following types of gonococci: 1. The normal gonococci, which have the size and characteristics usually ascribed to gonococci. 2. The microgonococci, which are considerably smaller. 3. The gigantogonococci, which are from four to six times larger than the normal gonococci. 4. The mosaicoid gonococci, which vary considerably in size but are usually much larger than the normal gonococci. Their shapes also vary; they are angular but may be three or four sided as well as six or eight sided; their arrangement is mosaic-like. 5. The vacuolar gonococci, which are also larger than the normal gonococci, are roundish, and sometimes appear as if two crescents enclosed a vacant space. The author emphasizes that his strains were always taken from twenty-four and forty-eight hour cultures.

Wiener klinische Wochenschrift, Vienna

45: 1029-1052 (Aug. 19) 1932

Radium Therapy in Internal Diseases. F. Högler.—p. 1029.
Limits of Therapeutic Action of Digitalis. F. Kisch.—p. 1035.
*Clinical Aspects and Therapy of Melanomas of Feet. A. Matras.—p. 1038.
Concurrence of Tuberculosis and Carcinoma. K. Rummelhardt.—p. 1040.
Aids in Treatment of Outward Rotation in Abnormalities of Hips. W. Zechner.—p. 1041.
Multiple Sclerosis of Organs of Internal Secretion. K. Herman.—p. 1041.
Septic Erysipelas of Face Caused by Olive of Stethoscope. V. Hecht.—p. 1044.
How to Avoid Disfiguring Scars in Major Surgery. L. Moszkowicz.—p. 1045.

Melanomas of Feet.—Matras relates that, of twenty cases of melanotic tumors that were treated in a dermatologic clinic in Vienna, seven, approximately one-third, were localized on the feet. He discusses the clinical course, the histologic aspects and the treatment of these cases and points out that the toes and the heel can almost be considered as the sites of predilection for the pigmented tumors. He also points out that even if the primary tumor was completely removed, it is possible that after a number of years (in one instance after seventeen years) metastases develop, which usually originate in the regional lymph nodes and generally are highly malignant. On the basis of experiences he gives the following advice for the treatment of melanotic tumors: 1. He recommends early and radical removal of the primary tumor, and this should be followed by local prophylactic radium irradiation. 2. In case of metastases of the lymph nodes, extirpation of the lymph nodes and subsequent prophylactic high voltage roentgen or radium irradiations could be tried.

Sovetskaya Vrachebnaya Gazeta, Leningrad

June 30, 1932 (Number 12), pp. 705-768

Diagnostic and Therapeutic Value of Sympathetic Cardiac Reflex in Angina Pectoris. M. E. Mandelshtam.—p. 707.
Clinical Study of Primary Acute Pneumonias. M. Kh. Ugrelidze.—p. 714.
Tetanus Toxoid (Anatoxin) for Prophylaxis in Medical and Veterinary Practice. A. V. Ponomarev and P. N. Vinogradov.—p. 721.
Passive Results in Serotherapy for Cerebrospinal Meningitis. E. A. Vigdergauz.—p. 728.
Efficacy of Malarial Therapy in Schizophrenia. P. F. Malkin and N. D. Martemyanov.—p. 732 .
Gastric Hemorrhage During Diabetic Coma: Case. M. A. Kopelovich and I. L. Dobkin.—p. 736.
Increasing Medical Facilities as Part of Second Five Year Plan. L. M. Mariampolskiy.—p. 737.
Public Health University for Masses. D. Efimov.—p. 746.
Program for Public Health and Preventive Medicine for Protecting Working Class. Ya. I. Lifshitz.—p. 749.
*Practical Macroscopic Methods for Determining Pus in Urine. D. I. Tukhshnid and E. G. Elmanovich.—p. 753.

Methods for Determining Pus in Urine.—While not disputing the fact that the microscopic method is the most reliable in the determination of pus in urine, Tukhshnid and Elmanovich elected to compare some macroscopic methods which might prove more practical. Four methods were used in a routine manner: (1) the Dushkova-Kosyakova test, in which to 6 or 7 cm. of well mixed urine in a graduated cylinder are first added three or four drops of ammonia and, after shaking several times, from 1.5 to 2 cm. of a 24 per cent solution of hydrogen dioxide, the test being positive when the foam formed is at least 1 mm. in thickness; (2) Donné's test, which consists of the addition of concentrated potassium or sodium hydroxide, and, after shaking, noting the jelly-like mass formed at the upper part of the urine; (3) Pozner's test, in which the height of a volume of urine which obscures a heavy type serves as an indicator of the turbidity of the urine, and (4) the microscopic test, in which Turck's blood-counting chamber was used for the quantitative determination of the leukocytes in 1 mm. of urine. The authors studied the urine of eighty-four patients and sixteen normal persons. The diagnoses included acute and chronic gonorrhea with various concomitant complications, cystitis, nongonorrheal urethritis and hypertrophic prostatitis. Their conclusions are as follows: The test with hydrogen dioxide always (100 per cent) gives an accurate and striking indication of the presence of pus, no matter what the source. Donné's test is a good indicator in acute inflammations of the urinary tract but is not very sensitive in chronic manifestations. Both of these tests are simple and can be performed in any ordinary laboratory. Pozner's method may be used only in acute cases when there are not less than 1,000 pus cells in 1 mm. of urine. The leukocyte count with Turck's blood-counting chamber served as a check on the other methods.

Ugeskrift for Læger, Copenhagen

94: 787-808 (Aug. 11) 1932

*Addison's Disease: Treatment with Swingle and Pfiffner Extract of Suprarenal Cortex: Case. C. Holten and E. Schiødt.—p. 787.

Addison's Disease: Treatment with Extract of Suprarenal Cortex.—Holten and Schiødt report the case of a woman, aged 40, with Addison's disease of probably twenty years' standing. A comatose condition had set in and the patient was almost moribund, when treatment with extract of suprarenal cortex, prepared according to the method of Swingle and Pfiffner, was begun. The effect was excellent and the patient is now almost able to work. The action of the preparation on the various symptoms and the dosage are discussed; a decline in the patient's psychic state is emphasized as the earliest and surest sign of underdosage.